

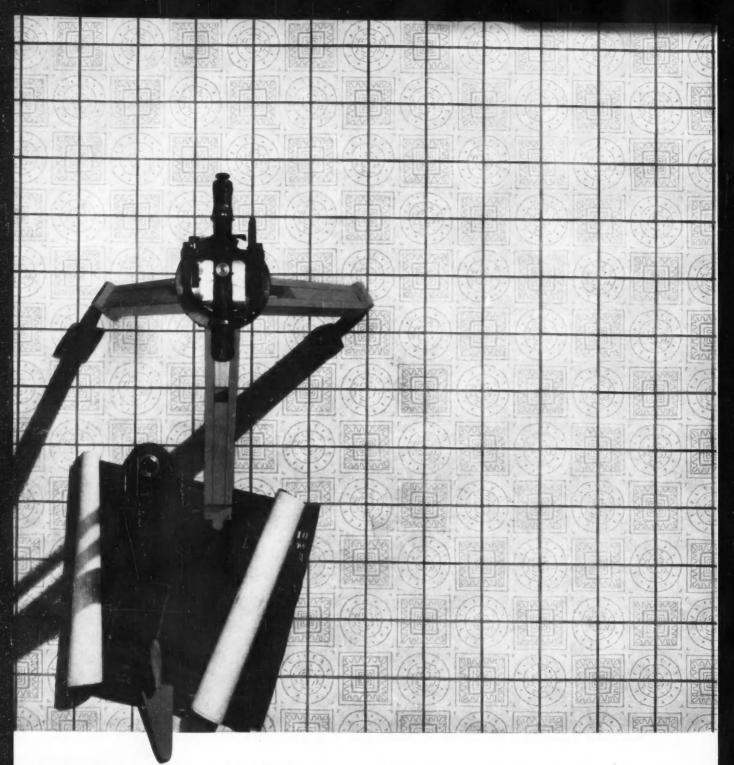
January 1960

Building Types Study: Industrial Buildings

Recent Work of Marcel Breuer

Rehabilitation Centers

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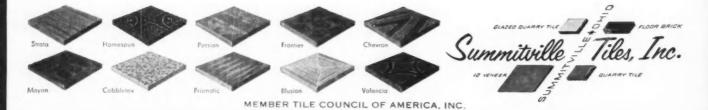


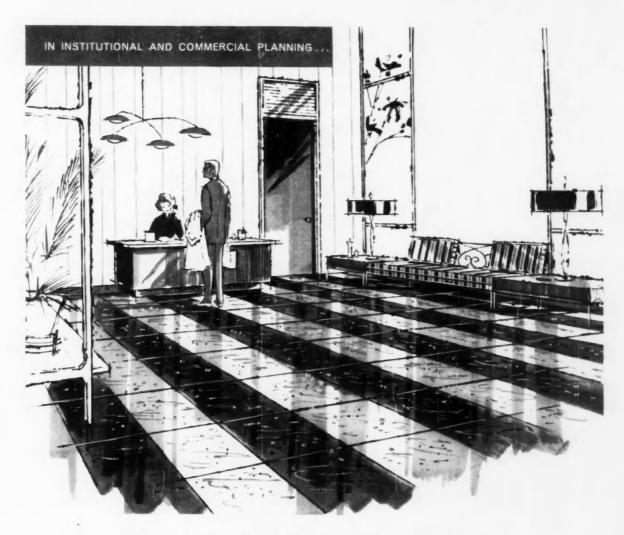
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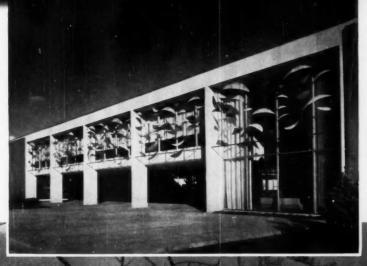


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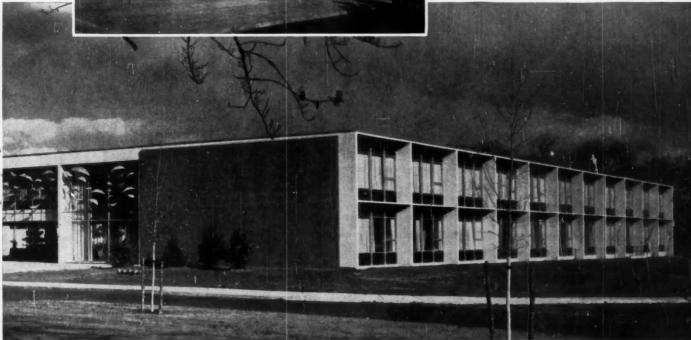


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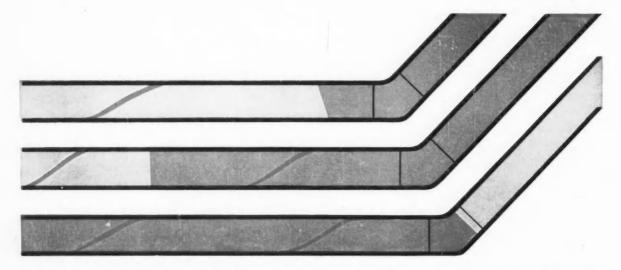
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Coming in the Record

YAMASAKI IN A QUIET MOOD

Or maybe it should be two quiet moods. The oft-published Yama is rapidly getting known for high vaulted forms in pretty exuberant styling. These two buildings—Warren Methodist Church and Detroit Institute of Arts and Crafts—show him in the softer accents of his forebears. There is a good deal of Japanese feeling in them; also a couple of nice devices to shield the buildings from less pleasant surroundings.

IMAGE OF THE ARCHITECT IN PRACTICE

Now that the little man with the beret and the brush has raised the question in these pages of the image of the architect, it is time to get a bit more serious about the architect and his functions in an age of boom and bustle. The February number will close out the list of promised examinations of the image, with a hard look at the public relations efforts of the architectural profession. This will be followed by the first results of a survey of architectural firms which have organized to meet the calls of the times. A great many architects tell, in their letters, of new activities and services, and, yes, new prosperity in architectural offices.

BUILDING TYPES STUDY: SCHOOLS

Another of our studies on schools, led off by an article on two schools especially designed for the teacher-team philosophy of education.

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WARE ALUMINUM WINDOWS

Architecture vs. Art?

The critique of the new Guggenheim Museum architects will not want to miss appeared in the December 5 issue of The New Yorker-a "Sky-Line" piece by Lewis Mumford entitled "What Wright Hath Wrought." The summary of Mr. Mumford's reaction is monumental disappointment with what he regards as a monumental miscarriage of the Wright genius. "Those who respond to the interior do proper homage to Wright's genius. If the purpose of the Museum is solely to exhibit Wright, the interior has magnificent justification for its existence. And if the spectator forgets the other works of art it contains, the building isfor him if not for the neglected artists-a compensation and a unique reward. What other monumental interior in America produces such an overwhelming effect?" But: "Instead of showing, as he well might have, how a great modern architect does justice to every aspect of a building. and not least the esthetic-without making timid compromises or irrational sacrifices or frivolous omissions-Wright turned his back on that challenge. He thus defeated his own purpose by producing a building that in order to function at all could not remain what he had planned it to be long enough to be formally opened. The old should not set such a bad example to the young, and the greatest of our architectural masters should not, while still hale and of sound mind, have added such a codicil to his last will and testament." In a long preliminary to the critique, Mr. Mumford concludes: "If I have occasion to speak severely, remember that I am talking about a true artist. one of the most richly endowed geniuses this country has produced—an artist who has no need for the apologetic leniency one might accord to a lesser talent. For the most serious flaws in Wright's work, it may be that the country fully shares reproof with the artist. Had we the proud understanding, when he was in mid career, to encourage him with great commissions, we would have earned the right to challenge his narcissism

and his complacent egocentricity and to require a more sober perfection than he, in the sheer willfulness of his genius, was prepared to achieve."

Can the famous rift between modern

Art vs. Architecture?

art and modern architecture be in fact a true schism?—has modern architecture, with its high concept of functional responsibility, been in effect deserted by a concept of art which deliberately rejects function? Emerson Goble, editor of ARCHITEC-TURAL RECORD, discussing homes for the aged at the Architectural League of New York last month, suggested that while a great opportunity exists for artists in such buildings it is far from sure they will welcome it. "It does seem clear." Mr. Goble said. "that people in their declining years would reach out with special appreciation for what comfort or solace they might find in contemplation of beautiful objects or surroundings. . . It would be a mistaken oversimplification to consider that the challenge to the artist was merely to assume a nostalgic mood of the guests and paint still-lifes of American Beauty roses, or even landscapes à la Grandma Moses. Nevertheless the nostalgia is there, and it is very real. And the artist definitely has a functional assignment. And this, of course, is what the modern artist has rejected. . . . Beatniks to the contrary, modern painters have with remarkable unanimity proclaimed that their art represented release from the representations of life. They have asserted that they were expressing themselves and their techniques, not yielding to the moods or the saccharine demands of the moment. I should say that statements of that kind, so forcefully proclaimed, amount to a firm rejection of the idea that modern art has or wants functional responsibilities, as for instance in brightening the lives of older shutins. Let me hasten to say that I would agree that in some instances modern art might have exactly that effect. But that was never its intent; no modern painter ever showed the

slightest sign that he was trying to brighten anybody's life. He would fight the man who made any such scandalous suggestion. That's what I mean by questioning whether the artist would find congenial the assignment to contribute something constructive to the environment of a home for the aged. He might welcome the commission, and he might even convince himself that his art had functional values. But you all know perfectly well that it would be the same egocentric thing he would do for his own satisfaction in his own studio. I might add that on the relatively rare occasions when modern painting has been presented with some functional challenge, this has been its response.'

Architect to Producer: Help!

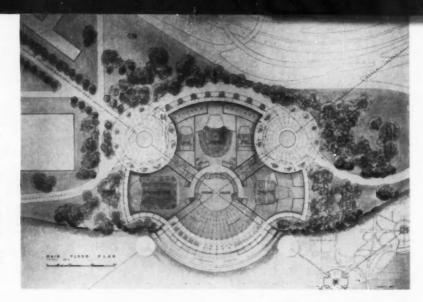
San Francisco architect Henry Hill, invited to address the annual meeting of the National Lumber Manufacturers' Association on the subject of what architects need from the manufacturers, had one clear answer for them: knowledge. If lumber production has decreased over the last 50 years, Mr. Hill said, "I feel that during this period the public (and the architect) have come to feel that wood is for residential work onlyand when it appears in larger work, it is mostly as a decoration, or as a softening effect only. Is this good enough? And why has it come to this? And the architect is GIVEN the information that he can span 'so and so' with steel and concrete. Can he do it with wood? Where can he find out? Who will help him? Where is the knowledge (and knowledge that is up to date)? What tools for the use of wood have you given us? . . To realize his belief and conviction the architect has in the past (and unfortunately in the present) developed his detailing by himself. We have nothing we can use for the framing of openings. . . . You have given us plywood, and the laminates; which is good, but not good enough. . . We ask for help—in standards and stock sizes for today's needs, convictions and beliefs."

Buildings in the News

National Cultural Center Plans Now Approved

Plans for the proposed National Cultural Center for the Performing Arts in Washington were unveiled recently. They are the work of Edward Durell Stone, appointed last June as consulting architect to the Center's Board of Trustees.

Arthur S. Flemming, Secretary of Health, Education and Welfare, is chairman of the Board of Trustees; Robert W. Dowling is chairman of the Advisory Committee on the Arts. The Federal government provided a 10-acre site under an act passed by Congress in September, 1958. Mr.



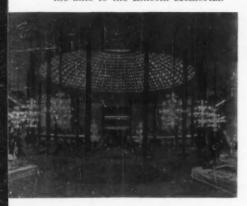


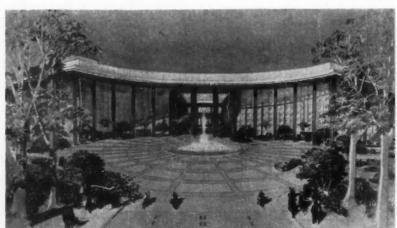
Above: Plan of the main floor of the Center, a single building about 850 ft across and 75 ft high, jutting about 200 ft into the river. Shown are the locations of the symphony hall (3000 seats), opera house (3500-4000), with two flanking auditoriums (800 and 400), and theater (1200-1800). The Grand Salon is intended for official and special receptions and balls and as a focal point. A restaurant, terrace, and ceremonial landing are included

Left: Rendering of an aerial view of the Center

Stone's concept has been approved by the National Capital Planning Commission and the Fine Arts Commission. Total construction cost is estimated at \$61 million; it is planned to raise the funds by a national subscription campaign.

The site is on the edge of the Potomac River. Mr. Stone has designed the Center "in the tradition of the L'Enfant plan" for Washington, with two circular plazas, one terminating New Hampshire Avenue, the other, to the southeast, terminating the axis to the Lincoln Memorial.





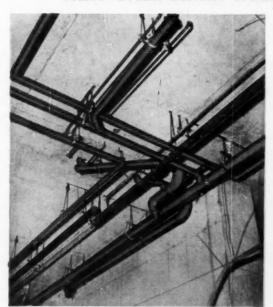
Above: Rendering of the Center as seen from the New Hampshire Avenue plaza

Left: Rendering of the interior of the glassdomed Grand Salon, 140 ft across, proportioned after the Pantheon in Paris



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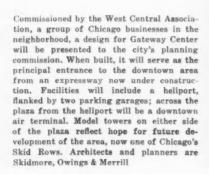


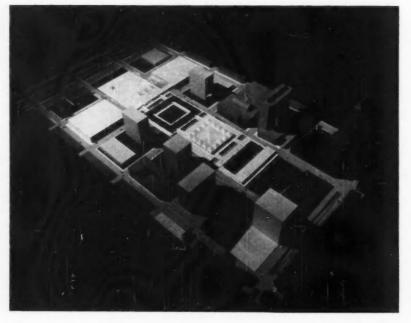


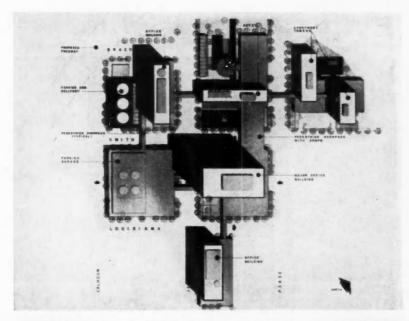


In Novelty, Ohio, near Cleveland, the American Metals Society's staff of 100 has moved into its new headquarters. The society's message on the uses of metal should be readily perceived by any viewer seeing the aluminum geodesic dome-"space-lattice," the stainless steel sunshades on the semicircular office building, and the 350 samples of ore and minerals which will be displayed in the central Mineral Garden. In addition

to these, metals used for hardware and furnishings include bronze, brass, titanium, chrome and copper. Structure is a flat-plate concrete supported by concrete-filled lally columns. The dome, designed by R. Buckminster Fuller of Synergetics, Inc., is actually a double dome, supported by five stainless steel pylons; it weighs 83 tons. John Terence Kelly was the architect, Gillmore-Olson, contractors and engineers







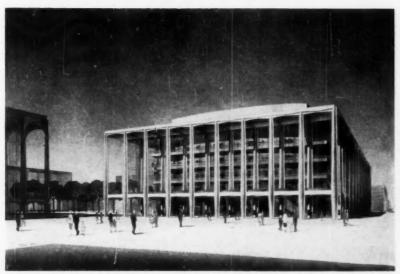
Scheduled to get underway immediately, Houston's \$100 million Cullen Center is said to be the largest privately financed downtown redevelopment yet contemplated in this country. Early buildings will include an office building, a hotel and parking facilities, to be followed in the future by two more office buildings, apartments and stores. The architects and planners are Welton Becket & Associates





Sarah Lawrence College, at Bronxville, N. Y., is building three dormitories as part of its expansion program. The buildings, to be ready in fall 1960, will house 150 students at a cost of \$1,200,000. Future buildings

will include a library, plastic arts building, science teaching facilities and music building. Philip Johnson is the architect of the dormitories; the general contractor is Nadal Baxendale, Inc.





Construction is well underway on the Belgian headquarters of Esso, in Antwerp. The building, which will have a façade of glass and gray aluminum, will comprise office space, cafeteria and parking facilities. The architect is Lathrop Douglass, and the contractor is the Compagnie Industrielle de Travaux

Final plans for Philharmonic Hall, the first building to be erected in New York's Lincoln Center of the Performing Arts, have been announced. The auditorium, designed so that orchestral performances should take acoustical preference over other musical programs, will accommodate 2400 listeners. Behind the 70-ft portico, glass walls will allow view of the plaza from terraces during intermissions. The hall is scheduled to be ready for the 1961-62 season. Max Abramovitz, of Harrison & Abramovitz, is the architect; contractors are Fuller-Turner-Walsh-Slattery

The Record Reports

Design Awards Made at Six Schools in Koppers Competitions

The winners of the second annual Koppers Architectural Student Design Awards were recently announced. The competition, for fourth-year architectural students, is sponsored by the Tar Products Division of Koppers Company, Inc. Each winner receives \$1000 from the company toward his fifth-year tuition.

The Koppers competition is actually not one competition, but a program of individual competitions at individual architectural schools. In 1958 the competition was conducted at five schools: Carnegie Tech, Georgia Tech, Cornell, University of California, Washington University. In 1959 the awards shown here were made at these schools and Yale. (It is tentatively planned to hold the 1960 competition at eight schools.) Each department of architecture selects its own subject, draws up its own program, and, in other words, runs its own contest. The only stipulation made by Koppers is that all designs entered have primarily flat roofs. The six award-winning designs, their descriptions, and the names of their student designers are shown on these pages.

Washington University—The motel is planned for 60 units initially, 40 later. The jury: Dean Joseph Passoneau, School of Architecture, and St. Louis architects John A. Holabird and Joseph D. Murphy.

Yale University-The jury: Architects Douglas Orr of New Haven and Ulrich Franzen of New York and hospital research specialist Robert Pelletier.

Cornell University—The jury: T. H. Canfield, acting chairman, department of design, and architects Milo Folley of Syracuse and Jerome G. Harrison of Philadelphia.

Carnegie Institute of Technology
—The jury: William Metcalfe Jr.
and Joseph Neufeld, visiting critics
and hospital design authorities; Dr.
Louis Block, in charge of research
grants under the Hill-Burton program; B. Kenneth Johnstone, former
dean of Carnegie Tech's College of
Fine Arts.

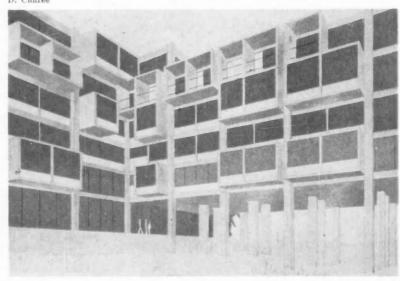
Georgia Institute of Technology— The jury: James H. Finch, critic in advanced design, and Atlanta architects Edward A. Moulthrop and M. Oliver Saggus.

University of California—The jury: Donald Powers Smith, president, Northern California Chapter, A.I.A.; William W. Wurster, dean, College of Architecture; Anson Boyd, architect for the state department of public works.

WASHINGTON UNIVERSITY. Project: A 100-Unit Motel. Winner: Robert L. Vickery Jr.

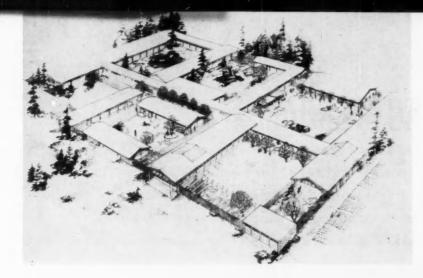


YALE UNIVERSITY, Project: A Community Hospital for Fairfield, Conn. Winner: Judith D. Chafee



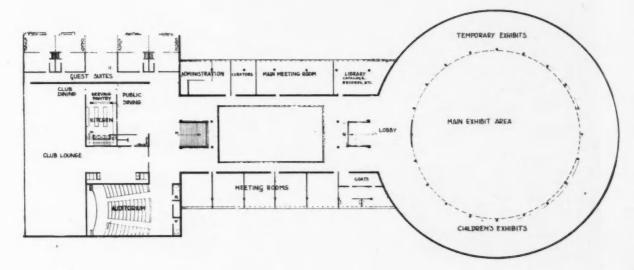
CORNELL UNIVERSITY. Project: A General Hospital for Atlanta, Ga. Winner: Charles F. Rogers II

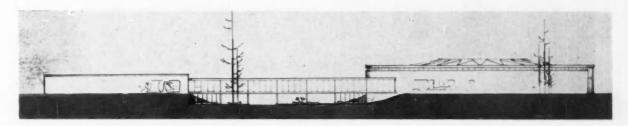




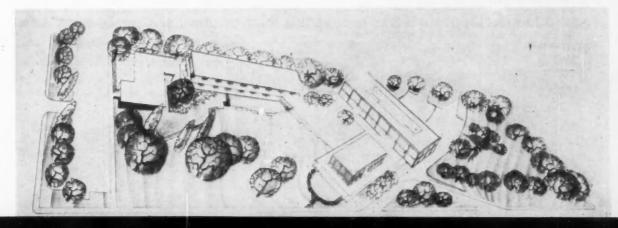
Left: CARNEGIE INSTITUTE OF TECH-NOLOGY. Project: A Community Psychiatric Rehabilitation Unit. Winner: William C. Shopsin.

Below: GEORGIA INSTITUTE OF TECH-NOLOGY. Project: A Regional Cultural Center and Museum of Arts and Sciences, Winner: Ronald Otto Hollnagel



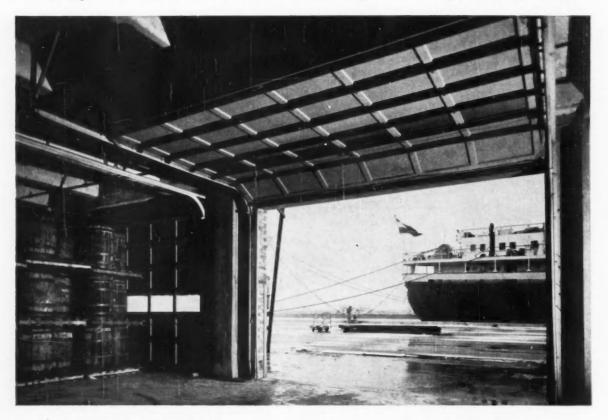


Below: UNIVERSITY OF CALIFORNIA.
Project: An Institute for Human Development. Winner: James Dale Lackey



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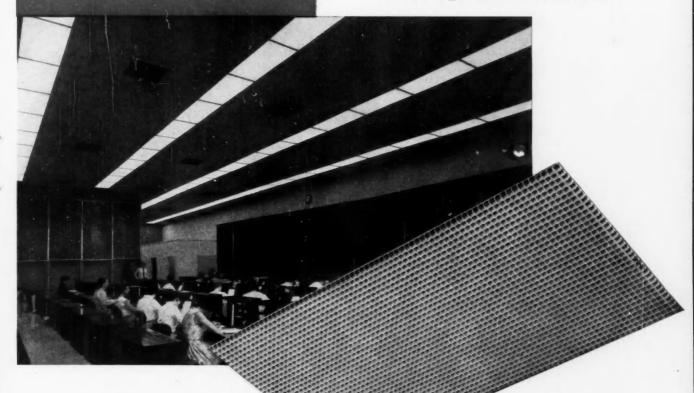
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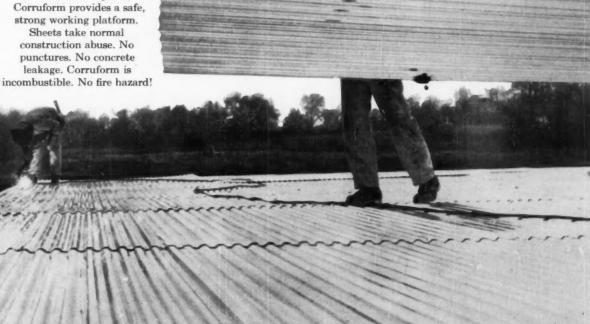
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News of Art and Architecture

Stained Glass by Robert Pinart Exhibited in New York

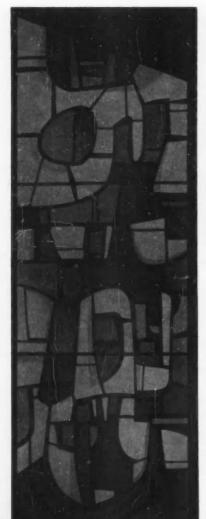


Stained glass by Robert Pinart was the subject of an exhibit at the Architectural League of New York last month. Shown here are four examples and a mural on silk, also by Mr. Pinart.

Robert Pinart, a native of France, came to this country in 1951. In recent years he has worked on six of Percival Goodman's synagogues

Above and right: Day and night views, from interior, of models of two of four windows for Temple Emanuel, Denver (Percival Goodman, architect). The windows, of slab glass and concrete, are each 63 ft by 21 ft 4 in. Below: Cartoon of a window executed for an architect's own house in Berkeley, Calif. (Robert W. Ratcliff, architect). The window, between living room and garden, is in violets and ochers and milky opalantique glass; it is 6½ ft by 2 ft





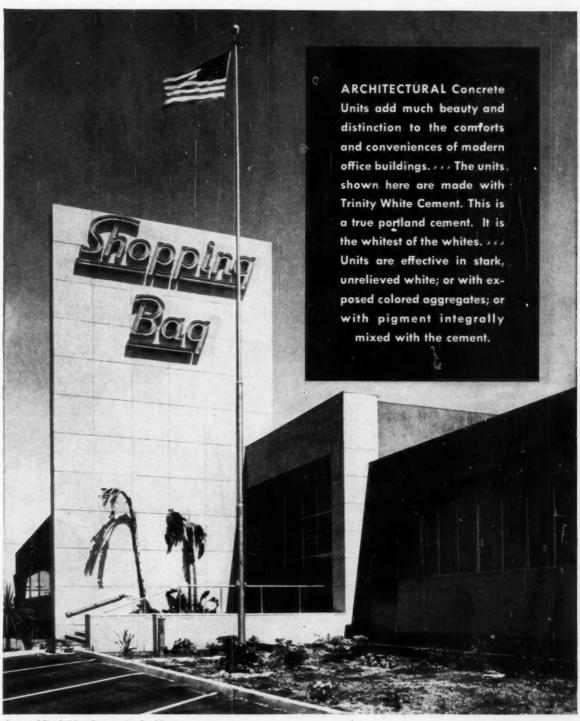


Above: Leaded glass in the façade of the Fifth Avenue Synagogue, New York (Percival Goodman, architect). Below: Mural painted on silk, Fifth Avenue Synagogue; 40 ft by 9 ft

(two of them shown are here). Among his other commissions have been the windows for the Music and Arts Building, University of California

The windows for the Fifth Avenue Synagogue, shown at left, range from cool to warm colors up the façade: the two bottom rows, outside the wedding chapel, are in blues and violets: the next four rows, outside the sanctuary, are in ochers, yellows, and oranges; the two top rows, outside the card room, are in crimsons and violets. The windows are repeated on the ceiling and back wall of the sanctuary. The mural painted on silk, in the banquet hall, depicts the desert flora of Israel; its colors are subdued browns, ochers, violets, and oranges.





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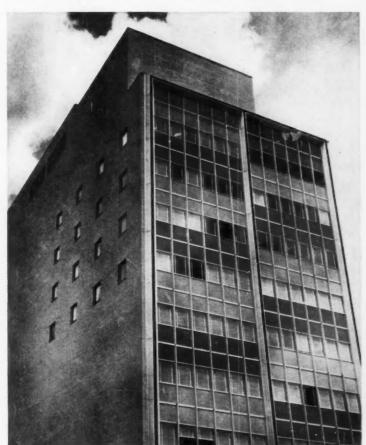
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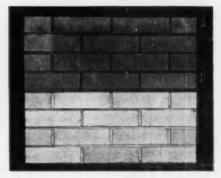
For centuries, brick has been one of the architect's best friends. But sometimes even this versatile material has a few faults, such as efflorescence and dirt pick-up, especially in the more decorative shades.

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untreated. Note heavy discoloration of untreated brick after six months' exposure in northern climate. Bottom bricks are still like new.

For more information and names of brick manufacturers, write Dept. 5901.

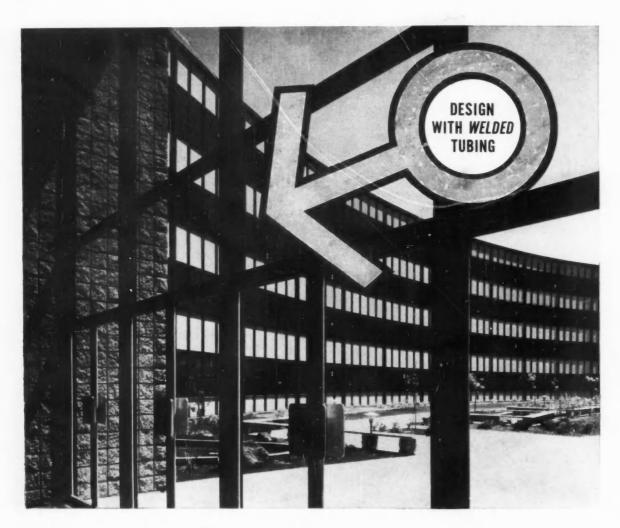
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-Drawn for the RECORD by Alan Dunn

North Central A.I.A. Meets

"Color in Architecture" was the theme of the North Central States A.I.A. Regional Conference, held in Milwaukee during the fall. The region includes Minnesota, North and South Dakota, Illinois, and Wisconsin.

A major speaker was Julian Garnsey, color consultant, on "Color as Selected." Isay Balinkin, professor of experimental physics, University of Cincinnati, led a seminar on "Color Fundamentals for Architects." Howard Ketcham, color consultant, discussed "The Psychological Use of Color in Building Materials," and Walter C. Granville, president of the Inter-Society Color Council, spoke on "Color and Design in Architecture." John Noble Richards, F.A.I.A., and Philip Will Jr., F.A.I.A., president and first vice president of the A.I.A., also spoke. Joseph Flad is president of the host Wisconsin chapter, and Karel Yasko was conference chairman. (Mr. Yasko recently was appointed chief state architect of Wisconsin.) Harold Spitznagel of Sioux Falls, S. D., is the regional director.

Consulting Engineers Meet

When the Consulting Engineers Council held its semi-annual meeting in Cincinnati recently, a number of topics of interest were considered. George W. Poulsen, documents committee co-chairman, described 11 C.E.C. documents just published; they include architect-engineer and engineer-client agreement forms, legal and procedural documents and bonds, and mechanical-electrical special conditions. A progress report on cost elements involved in the operation of a consulting office was presented by Cedric Acheson, office practice committee chairman.

Larry N. Spiller, C.E.C.'s executive secretary, reported on the results of a survey of 71 air-conditioning and heating equipment manufacturers. Firms were asked to indicate whether or not local agents performed design engineering. Mr. Spiller said the results show a growing awareness among manufacturers of the consultants' feelings about design competition; he added that many companies announced their intention to prohibit such activity.

Ralph M. Westcott of Los Angeles is president of C.E.C. National offices of the organization are at 326 Reisch Bldg., Springfield, Ill. The next meeting of the group is to be May 4-7 in Portland, Oregon.

Worth the Winning

THE SECOND ANNUAL \$25,000 MASTIC TILE ARCHITECTS' COMPETITION, sponsored by the Mastic Tile Division of the Ruberoid Company. The sub-

ject is "Education for Youth and Adult-Recreation for All the Family." The problem is the planning of an educational and recreational "plant" for a specific area adjacent to the site of middle-income housing planned during the first annual competition (AR, Sept. '59, pp. 14-15). The jury is to be headed by Henry L. Kamphoefner, F.A.I.A., dean, School of Design, North Carolina State College. The other members will be: Harry J. Carman, dean emeritus, Columbia College; William W. Caudill of Caudill, Rowlett, Scott & Associates; John Lyon Reid, F.A.I.A.; Eberle M. Smith, A.I.A. Professional adviser will again be A. Gordon Lorimer, A.I.A. Eligible are registered architects of the U.S., architectural assistants, and architectural students. The deadline for submission of entries is June 30. Details from: Mastic Tile Division. The Ruberoid Co., P. O. Box 128, Vails Gate, N. Y., or from any sales representatives or distributors.

UNIVERSITY OF PENNSYLVANIA, SCHOOL OF FINE ARTS: graduate fellowships in architecture, landscape architecture, city planning, fine arts. Applications are due by March 1.

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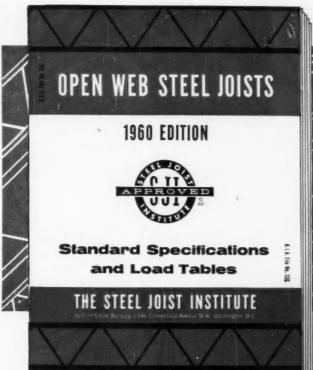
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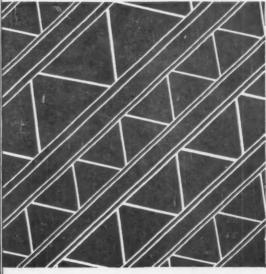
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SHIP of \$3000, available to architects of the New York area who are between 23 and 30. The 1960 award will be given on the basis of a competition for the design of a heliport. Entries are due by March 7. Program and details from: Lester D. Tichy, Chairman of the LeBrun Committee, New York Chapter, American Institute of Architects, 115 E. 40th St., New York 16.

THE BUFFALO-WESTERN NEW YORK CHAPTER, A.I.A. SCHOLARSHIP AWARD of \$1000 for postgraduate study. The award, sponsored by Anchor Concrete Products, is available to residents of the eight western New York State counties who are under 30. Details from: Thomas Justin Imbs, A.I.A., 225 Delaware Ave., Buffalo 2, N. Y.

THE 1960 HOMES FOR BETTER LIVING NATIONAL AWARDS, sponsored by the American Institute of Architects in cooperation with *House & Home* and *Life* magazines. Entry slips are due by January 15 and entries by February 12. Details from: A.I.A., 1735 New York Ave., N.W., Washington 6.

Parents' Magazine Winners

The winners of Parents' Magazine's Tenth Annual Builders' Competition for the best houses for families with children were recently announced. Houses were entered and judged in two cost categories (exclusive of land): Up to \$15,999 and \$16,000-\$25,000.

The National Merit Award in the lower-price group went to Lincoln Built Homes, Lafayette, Calif. The same builders also won a qualifying Regional Merit Award for the Seymour house, Roseville, Calif.; David B. Whittet, designer. Other Regional Merit Awards in the lower-price group were given as follows: Bell & Valdez, Inc., Bellevue, Wash., for the Chambers house, Bellevue; John M. Anderson, architect. Federal Development Corp., Tucson, Ariz., for the Willoughby house, Tucson; Scholer & Fuller, architects. Norman Igo. Lubbock, Texas, for the Burkhalter house, Lubbock; Schmidt & Stuart. architects.

Regional Merit Awards in the higher-price group were given to: E. B. Vaughters, Seattle, for the Pitts house, Mercer Island, Wash.; Seth M. Fulcher, architect. Eichler Homes, Inc., Palo Alto, Calif., for the Reed house, Sunnyvale, Calif.; A. Quincy Jones & Frederick E. Emmons, architects.

The jury this year consisted of: Martin L. Bartling Jr., Knoxville



This bridge won for Allan M. Beesing the \$15,000 first award (professional) in the recent Steel Highway Bridge Design Competition sponsored by American Bridge Division, U. S. Steel Corporation. The competition, held and judged under the auspices of the American Institute of Steel Construction, brought in 300 entries; 15 professional and student awards were made. Mr. Beesing, a registered professional engineer in Buffalo, N. Y., designed a 160-ft span of welded steel girders with no center pier. The purpose of the competition was "to stimulate more imaginative, effective, and economical use of modern use of modern, high-strength steels in overpass structures"



Eero Saarinen, one of three men recently elected to membership in the American Academy of Arts and Letters. Mr. Saarinen will occupy Chair No. 9, formerly held by Frank Lloyd Wright. Membership in the Academy is limited to 50 men and women, chosen for special distinction from the 250 members of the National Institute of Arts and Letters, its parent body. The two other new members are Robert Penn Warren, novelist and poet, and Virgil Thomson.

builder and first vice president, National Association of Home Builders; Richard M. Bennett, F.A.I.A., Loebl, Schlossman & Bennett; Ralph J. Johnson, director, N.A.H.B. Research Institute; William H. Scheick, A.I.A., vice president, Timber Engineering Co.; Maxine Livingston, Family Home editor, Parents' Magazine.

Award to McGavran

G. E. "Rod" McGavran, publisher and editor of Daily Pacific Builder, a newspaper for the construction industry published in San Francisco by the F. W. Dodge Corporation, received the 1959 "Honor Award" in San Francisco from the Building Industry Conference Board. The award, given for "service to the industry and community," was presented by architect Wayne Hertzka at a banquet. John Noble Richards, F.A.I.A., president of the A.I.A., was a speaker. Sherman P. Duckel, San Fran-

cisco City Administrator, received the 1959 "Achievement Award" on the same occasion and for the same reasons.

Ohio Architects Meet

When the 26th Annual Convention of the Architects Society of Ohio met in Akron this past fall, the theme was "Fine Arts in Architecture." Among the speakers were Henry Lee Willet on "Stained Glass Today"; Linn Smith, A.I.A. Great Lakes regional director; Clinton H. Cowgill, F.A.I.A.

Officers of A.S.O. now are: Harold W. Goetz, president; Gilbert Coddington, first vice president; Howard B. Cain, second vice president; Orville H. Bauer, third vice president (newly elected); Frank E. Poseler, secretary (re-elected); Joseph Tuchman, treasurer (newly elected). The immediate past president is Hermon S. Brodrick. The executive director is Clifford E. Sapp.

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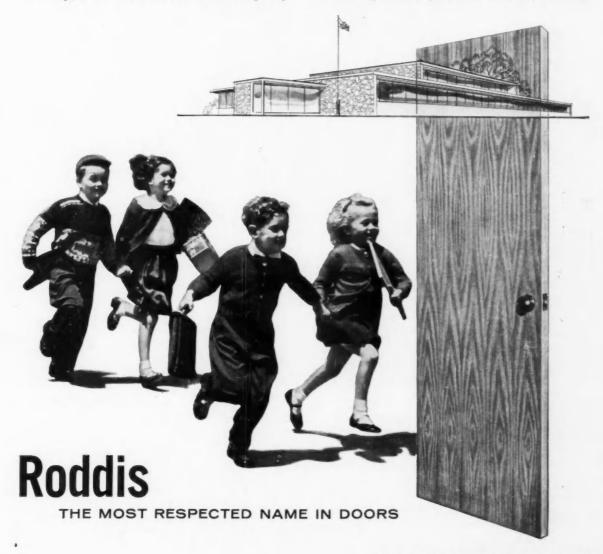
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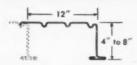
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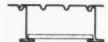
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- New! Galvanized. For clear spans to 32'0". Adaptable to acoustical and flush, luminous ceiling treatments. Provides superior diaphragm to transmit seismic and wind loads.

Ceiling Treatments with T-Steel Deck



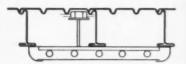
Standard Tile or Board



Corrugated Diffuser



Exposed (Underside painted for increased reflection)



Surface-mounted Fixture



Lath-and-Plaster Fireproofing



TYPE B ACOUSTIDECK

For purlin spacings from 6' to 10'. Uses minimum of 1" rigid insulation board.



TYPE C ACOUSTIDECK

For purlin spacings from 10' to 24'. Uses minimum of $11/\!\!\!/_2$ " rigid insulation board.

When requested, inland roof-system specialists accept complete responsibility for the erection of T-Steel and Acoustideck — or provide assistance to the contractor or his sub.

Complete structural systems that broaden your latitude in planning ceilings, lighting, acoustics - within realistic budget boundaries

Acoustideck for gymnasiums, other activity areas

New roof systems

Two-in-one panel combines steel roof deck and acoustical ceiling. Provides acoustical treatment that is considerably less subject to damage than other types — Noise Reduction Coefficient of .70. Installed by welding in the same manner as regular steel deck.

Acoustideck has all the additional advantages of steel-deck construction: It is erected fast - in any weather that a man can work. Its Bonderized bakedenamel prime finish cuts painting costs in half. The interesting ribbed underside can be left exposed as an attractive ceiling.

ATLANTA, BALTIMORE, BUFFALO, CHICAGO, CINCINNATI,

for schools ... by INLAND

New Inland T-Steel Roof Deck for clear-ceiling classrooms

Especially suitable over classrooms of 26' to 32' spans — or other areas where you want a large expanse of unbroken ceiling surface for a contemporary feeling.

You can provide practically any acoustical treatment — T-Steel permits installation of acoustical tile at an economy no other roof system can match. You can provide a flush, luminous ceiling — or you can leave the underside of T-Steel exposed and painted.

T-Steel deck provides a superior diaphragm to

resist seismic and wind thrusts . . . as proved by full-scale shear tests conducted by independent engineering firms.

Write for catalogs 240, 241, and 246 or See Sweet's, sections 2c/Inl and 11a/In for full information on T-Steel and Acoustideck. Inland Steel Products Company has developed a force of trained sales engineers who are capable of giving you the benefit of their diversified experience on specific problems. Write or call your nearest Inland office,



ENGINEERED PRODUCTS DIVISION

INLAND STEEL PRODUCTS COMPANY

Dept. A, 4033 West Burnham Street Milwaukee 1, Wisconsin

CLEVELAND, DALLAS, DENVER, DETROIT, KANSAS CITY, LOS ANGELES, MILWAUKEE, MINNEAPOLIS, NEW ORLEANS, NEW YORK, ST. LOUIS

The Record Reports

Flint Builds Offices as Showcase for Steel

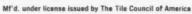
The new office building of the Flint Steel Company in Tulsa was frankly intended by the company to be a tour de force in architectural uses of steel as well as an efficient head-quarters; and Architect Donald Mc-Cormick can list 25 uses of 12 steel components in the 20,000-sq-ft building.

Beyond such functional uses as framing, walls, partitions, ceilings, doors and windows, Mr. McCormick has found numerous occasions in the





When Bill Dale, president of the Dale Tile Co., Minneapolis, constructed a new building for his growing business, he chose frostproof ceramic tile for the exterior — installed with TILEMATE. Men who know tile best invariably specify TILEMATE for all weatherproof exteriors — swimming pools, too. A thin-set mortar, TILEMATE can be used over cement mud coat, or against dry back-up. Mixes with water at the job site. Lighter, easier to handle, saves labor and material costs. Write for catalog.

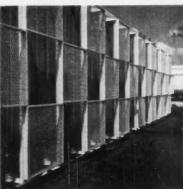




THE UPCO CO.

4805 LEXINGTON AVENUE • CLEVELAND 3, OHIO
Manufacturers of Hydroment Joint Filler

In the West, HYDROMENT, INC., Monterey Park, Calif.





building for steel as decorative accent—from the ornamental screens on both exterior and interior to the lobby mural and the sculpture and planting boxes outside.

The acoustical problem was solved through the use of a sandwich-type wall panel with a fiberglass core for both exterior and interior walls—the panels perforated on one side only and erected with plain and perforated sides alternating to give each room a 50 per cent acoustical treatment on the walls. Ceiling panels also alternate for a 50 per cent acoustical treatment on ceilings.

In design, Mr. McCormick notes, "an effort was made to take massive, heavy-looking shapes, and through color, lighting, the flow of space, etc., make them appear light, free and in human scale."

more news on page 48



MORK

Creative engineering opens the way to increased comfort and productivity...

Wherever People LIVE...



HOMES—York helps families live batter, sat batter, sleep better in cool, cleen, more healthful comfort.



APARTMENTS—York makes them quieter and more comfortable to live in, and much easier to rent.



HOTELS and MOTELS York keeps rentals competitive, helps assure full occupancy all year around.

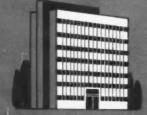
Wherever People WORK...



STORES - York helps attract more customers, keeps them longer, and puts them in a buying mood.



FACTORIES—York boosts output and profits, cuts employee turnover, protects product quality.



OFFICES — York increases employee efficiency, cuts absenteeism and clerical errors, boosts morale.

Wherever People TRAVEL...



CARS-York's compect, powerful auto compressor is used by 90% of independent car air conditioners.



TRUCKS—York all-electric, hermetic truck refrigeration unit delivers constant cooling from idle to top speed.



SHIPS—York has equipped 5 out of 7 Mariners. York offers service facilities in all major world ports.

"I can press a button
and ripen an acre of fruit...
reduce clerical errors...give
3,000 people a good night's sleep



YORK

... continues the development of refrigeration and heating equipment of temperature



of advanced air conditioning, pment for more ire, humidity and air cleanliness! YORK BORG-WARNER creative engineering continues the development of tomorrow's air conditioning and refrigeration equipment at these modern research centers...

YORK Research Center, York, Pennsylvania

Many pioneering achievements have originated here. This laboratory contains a completely tooled shop in which experimental equipment is built and thoroughly tested. York, a leader in the field since 1885, puts 75 years' experience into every product.



BORG-WARNER Research Center, Des Plaines, III.

This multi-million dollar, 36-acre laboratory is equipped with the very latest scientific devices and facilities. Precision instruments, such as the electron microscope which magnifies 100,000 times, enable detailed studies of materials and operating characteristics.



SEE YORK EQUIPMENT ON DISPLAY AT THESE TRADE SHOWS...

Southwest Reating & Air Conditioning Exposition Memorial Auditorium - Oaltas, Texas Feb. 1-4, 1990 - Booths 788-710 & 807-811 The Western Air Conditioning, resting, Ventilating & Myrigeration Exhibit and Conference
Shrine Exposition Hall - Los Angeles, California
April 27-30, 1999 - Booths, 211-255 & 212-254

OR MAIL THIS COUPON FOR COMPLETE INFORMATION

YORK



BORG-WARNER RESEARCH & ENGINEERING MAKE AT BETTER

Air Conditioning, Heating, Refrigeration and Ice-Meking Equipment - Products for Home Commercial and Industrial Installation



YORK Air Source Heat Pumps in Action at...



SYLVANIA LABORATORY, AMHERST, N.Y., uses a York Heat Pump to heat and cool the 85,000 sq. ft., 2½ story building. System delivers 250 tons of cooling in summer and 2400 MBH heating in winter to York perimeter fan-coil units.

RICH'S DEPT. STORE, ATLANTA, GA., in the huge, modern Lenox Square Shopping Center, is heated and cooled by a York compound air source heat pump. Cooling capacity is 820 tons and the heating capacity is 3400 MBH.

YORK Compound Air Source Heat Pump can heat and cool simultaneously!

Cools one side of building...
uses rejected heat to warm
the other side!

Because of wide variations in solar and internal heat loads, multi-story buildings require heating and cooling at the same time almost all year around. York's air source heat pump which can heat and cool simultaneously is the ideal answer for such a situation.

The York Heat Pump can take heat from the sunny side of the building where cooling is needed, and move this heat to the shady side where warmth is needed. Or this advanced York system can take heat from any area to be cooled, such as a data processing machine room or telephone exchange, and move it to any area needing warmth.

In this way, the York Heat Pump delivers 66% of the heat absolutely free. For every kilowatt of electric power that's put into the system, three kilowatts worth of heat come out. The free heat comes from such sources as outside air, rejected heat from cooling, waste heat from processing, etc.

The York Heat Pump with exclusive compound compression can wring heat from $-10\,^{\circ}\mathrm{F}.$ air, making it applicable for year around heating and cooling in any part of the U.S. No supplemental electric strip heating is required. The compound design produces up to 67% more heat than a single stage system from the same electric power. York Heat Pumps can be completely factory assembled and tested for simple, low cost installation, and absolutely dependable operation.

YORK 3-Pipe Hi-I Induction System makes <u>both</u> heating and cooling continuously available at each unit!

Gives instant response and slashes operating costs!

Multi-room buildings often require heating for some spaces and cooling for others simultaneously. Up to now this has been done in one of two ways: 1) Double duct systems with a warm and cold air stream that is blended at the air outlet to provide desired room temperature, or 2) Conventional induction systems that deliver warm ventilating air while circulating a variable quantity of cold water. Either method achieves control in the conditioned space by consuming both heating and cooling energy simultaneously.

York's 3-pipe system provides either heating or cooling at any time without wasteful mixing. Both hot and cold water are piped to each unit. A York-conceived automatic 3-way non-mixing control valve selects one or the other and modulates flow to provide desired temperature. If neither heating or cooling is needed, water shuts off.

Some like it hot, some like it cold. Having heating and cooling capacity always available at each unit permits wider temperature variation from room to room, and gives instant response to changes in load or thermostat setting. Assures highest level of personalized comfort ever offered!

Simplicity of York system means substantial savings in operating costs, low initial cost and reduced space needs. Added cost of the third pipe is offset by eliminating change-over problems, reheat coils, duplicate zoning equipment, simplifying air distribution and control systems.



YORK 3-Pipe Hi-I Induction Systems in Action at...



STATLER-HILTON HOTEL, BOSTON, delivers instant comfort to 1300 guest rooms with York 3-pipe system. Using existing steam, turbine-driven centrifugal and steam-powered absorption water chillers economically provide 812 tons cooling.



PENN 17 OFFICE BUILDING, WASHINGTON, D.C., will be heated and cooled with a York 3-pipe peripheral system consisting of 550 Hi-I Induction units. Two York Turbo pak water chillers will supply approximately 650 tons refrigeration.



YORK Lithium Bromide Absorption System Cools with Steam or Hot Water!

Uses less pump horsepower per ton of cooling!

Here is a unique system that can use an existing steam supply, either from boilers or district steam companies, to provide chilled water for comfort or process cooling. This means significant savings in operating costs over motor-driven compressor systems. Hot water or process fluids can also be used as the heat source.

York's Absorption System is virtually maintenance-free. Except for 3 small pumps and motors, it has no moving parts. The absence of major moving parts insures extremely quiet, vibration-free operation. This permits installation anywhere from basement to roof without special foundations or sound deadeners.

Installation costs are cut by eliminating large expensive starters and heavy electrical conduit. System operation is automatic and completely flexible, easily handling all load changes from overload down to zero.

In the York Absorption System, plain water is the refrigerant and lithium bromide, a simple salt, is the absorbent. Both these fluids are non-toxic and non-explosive, and never need replacement once charged into the system. York's advanced fluid distribution method assures quieter operation, rapid start-up and close control. A steam valve provides simple, direct capacity control.

YORK Lithium Bromide Absorption Systems In Action At...



ALLEN MFG. CO., BLOOMFIELD, CONN., uses their excess boiler capacity in summer to provide cooling. A 230-ton York Absorption System air conditions the office and cafeteria and a 170-ton unit chills process water for plant usage.



CARSON PIRIE SCOTT & CO., CHICAGO, ILL., uses a 200-ton York Absorption System to cool 120,000 sq. ft. of office, cafeteria and retail sales space in their 11-acre warehouse building. They expect 25% savings in operating costs.



TISHMAN BUILDING, BUFFALO, N.Y., has a 530-ton York Absorption System supplying cooling to a York Induction Air Conditioning System. The entire refrigeration and heating plant is located on the roof of the 20-story building.

YORK Turbopak World's First Packaged Hermetic Centrifugal Water Chiller!

Takes 50% less space!

York's Hermetic Turbopak is a full 50% smaller than previous models, saving valuable floor space and enabling installation in confined or non-productive areas. Secret of the unit's amazing compactness is the exclusive York Borg-Warner power transmission, which permits a 50% reduction in the size of the compressor rotor.

To save on installation costs, the Turbopak is completely factory assembled and insulated. It is shipped and rigged as a single unit. There's no time-consuming aligning or refrigeration piping required on the job, just simple water and power connections.

The York Turbopak is exceptionally quiet and vibration-free, permitting it to be located anywhere in the building that's convenient. The system is automatically controlled from an attractively styled, centrally located panel that is factory wired and mounted on the unit.

Efficient capacity reduction from 100% down to 5% is made possible by pre-rotation vanes. This automatic, continuously variable control method, introduced by York, gears refrigeration capacity directly to air conditioning load.



YORK Turbopak Water Chillers In Action At...



OWENS-CORNING FIBERGLAS CORP., GRANVILLE, O., requires precise temperature-humidity control and clean, dust-free atmosphere for this research and testing facility. Two 200 horsepower tark permetic Turbopaks do the job.



ILLINOIS POWER CO., DECATUR, ILL., installed a 100 horsepower Turbopak for air conditioning their 2-story office building. Unit's compactness enabled location in space previously wasted. Expect to save 15% in maintenance.



INSURANCE COMPANY OF NORTH AMERICA, RICH-MOND, IND., makes use of a 125 horsepower York Hermetic Turbopak to air condition their modernized office building, greatly increasing the comfort and efficiency of the employees.



Complete YORK Line of Central-

EXACTLY MATCHED TO OTHER YORK E

Wide Line—New fan-coil units from 800 to 36,000 cfm are design-matched to York cooling equipment to give a complete, balanced system. Units cool, heat, humidify, dehumidify, mix, filter and circulate the air for complete human comfort.

Maximum Flexibility—Modular construction gives design flexibility, cuts installation costs. Fan section rotates for air discharge in 3 directions. Coil section accommodates almost any combination of cooling, preheat and reheat coils.

Long Life Built In—Rigid frame angle construction completely galvanized for corrosion protection. Fans double-protected with epon coating baked over galvanized finish. Fan bearings permanently life-time lubricated for dependability.

Quiet Operation—Evase connection between fan outlet and unit outlet insures maximum efficiency at lowest noise level. Fans have forward-curved blades for low speed, low outlet velocity operation to assure quietness. Panels sound-insulated.

Modular designand installation and either coincludes a w

Range of Equipment and Service



PACKAGED WAYER CHILLERS. Widest range of models, including a new dry-expansion line, to meet any application. Take 20% less floor space. 3 to 300 tons.



HERMETIC COMPRESSORS. Deliver more capacity per foot of installation space. Largest model takes only 7 sq. ft. of floor area. 10 to 45 tons refrigeration.



V/W COMPRESSORS. Halocarbon or Ammonia, up to 300 tons. Automatic unloading down to 25% capacity with power savings in almost direct proportion to load.



HYDRALINE. Attractive recessed fan-coil units and ton factory packaged chillers for hydronic heati air conditioning systems.

Expanded YORK Line of Package

FOR COMMERCIAL APPLICATIONS



Embassy water-cooled models with step-capacity design cut operating costs up to 15%. Cool a room or a building. 3 to 33 tons.



Champion air-cooled models eliminate costly water towers and connections. Install quickly and easily. 10 to 22½ tons capacity.



Heat Pumps heat and cool, have exclusive electric defrosting. Completely factory assembled and wired for fast installation.



Comfort Center heats an humidifies and dehum purifies air electronically, compact, attractively styl

I-Station Air Conditioning Units

EQUIPMENT TO GIVE YOU AN EFFICIENT, WELL-BALANCED SYSTEM



r design of this new line of York central fan-coil units provides unusual design tallation flexibility. Unit sections can be arranged horizontally or vertically, her ceiling or floor mounted, to best utilize the space available. New line s a wide choice of accessory equipment to meet individual requirements.

Plus THESE ADVANCE DESIGN AIR HANDLING UNITS



Hi-I Induction Air Conditioners in wall or floor models with 30 capacity sizes. High efficiency plenum and nozzle design improves air circulation, boosts capacity per cfm of primary air.



Fan-Coil Air Conditioners can supply year around heating and cooling without primary air equipment and ducts. Complete range of floor, wall and ceiling models for any application.

e to Meet Your Specific Requirements



ECONOMIZERS. Wide choice of evaporative condensers to save water and power. Sectional construction for installation ease and flexibility. Built to last.



ICE-MAKING EQUIPMENT. Saves cost of delivered ice, pays for itself. Automatic, factory pack aged units with ice-making capacities from 100 lbs. to 12 tons

Fast Service from a Nationwide Network of YORK PARTS DEPOTS

Strategically-located warehouses give fast, localized service on genuine York renewal parts, valves, fittings and oil. Helps minimize equipment downtime.

Continuous Peak Performance of Your Air-Conditioning System Assured by

YORK Certified Maintenance

Covers regular inspections, emergency service, complete maintenance including parts and labor, changeover or start-up and shut-down for a nominal, agreed-on-in-advance fee.

ged Air Conditioning

FOR RESIDENTIAL APPLICATIONS



Heat Pumps heat and cool electrically, eliminate chimneys and fuel handling. Self-contained unit installs almost anywhere.



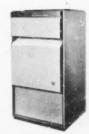
Pathfinder self-contained air conditioners cool a whole house, need no water. Locate anywhere there is access to outside air



"Add-On" air conditioning units bring cooling economically to warm air heating systems, or install as a separate system



Room Air Conditioners deliver powerful-quiet cooling. Three beautifully styled series, including year-round heat pump models.



Gas or Oil fired furnaces have Silver "V" burners that deliver more heat, more economically. Complete range of types and sizes.

active, semi s and 3 to 15 ged water heating and

ts and cools humidifies. cally, all in one y styled unit



6 Scientific Guides to the Use of COLOR



in

- SCHOOLS
- HOSPITALS
- INDUSTRIAL PLANTS
- RETAIL STORES
- RESTAURANTS
- MOTELS

Including 36 Functional Colors and Instructions for their Use

If you are responsible for the specification of color in any of these six fields, these Colorizer Functional Color Kits will be an invaluable aid. They were prepared by a nationally-respected color authority, and show in precise detail how color can be used in these 6 types of institutionsnot only to provide tasteful decoration but to promote morale and efficiency, better seeing, safety, and improved employee and public relations. Each kit illustrates and specifies exact colors for various interior and exterior areas - and explains why. The 36 recommended paint colors are coded for easy selection, and reflectance percentage is given for each color. Colorizer Paints are available throughout the U.S. and Canada. Choose from easier-to-use Colorizer "Instant Paint" for interiors . . . highest quality enamels . . . floor paints . . . wood finishes . . . long-lasting exterior finishes.

PAINTS IN 1,322 COLO

COLORIZER ASSOCIATES: Bennett's, Sait Lake City & Los Angeles • Bise Ribben Paint Co., Cakland & Los Angeles, Calif. • Brooklyn Paint and Yarnish Co., Brooklyn, N. Y. • Jar Western Frint Mfg. Cerp. Kanas City. Mo. - Aweel Paint & Yarnish Ca., Chicago, Illinois * Kathia-MicLiate Paint Ca., Denver, Colo. - W. H. Sweney & Ca., St. Paul, Minn. - Yane-Celvert Paint Ca., St. Louis, Mo. - Warrer Paint and Geler Co., Nathville, Paint Co., St. Louis, Mo. - Warrer Paint and Geler Co., Nathville, Pann. - George D. Wetherill & Co., Inc., Philadelphia, Penna. - The Imperiat Fig-Glaze Paints, Ltd., Toronto, Canada - Jesset & Nicholsen, Ltd., London, England. PLEASE ATTACH TO YOUR LETTERHEAD

343 North Western Avs. - Chicago 12, III.

As an uid to be used in specifying color, I would like the Colorizer Functional Color

Retail Stores

ARCHITECTURAL RECORD January 1960

45

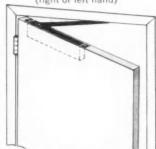
MULTI-CHECK



mounts any way you like...

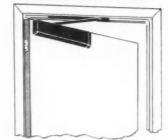
mortised in the door

(right or left hand)



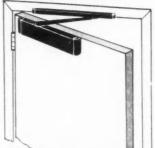
push side—surface mounted

(right or left hand) NO SPECIAL BRACKET NEEDED



pull side surface mounted

(right or left hand)



non-handed closer meets every mounting need...

ONE-PIECE (non-protruding) ARM hides away when door is closed.

HOLD-OPEN quickly adjustable to any one of 7

FLOATING ROLLER in arm rides TRAVELING SPINDLE freely to adjust to door sag or improper hanging.

moves with arm to relieve leverage stress on hinges and door frame. TWO CLOSING SPEEDS independently adjustable

write for complete details and installation templates



THE OSCAR C. RIXSON COMPANY

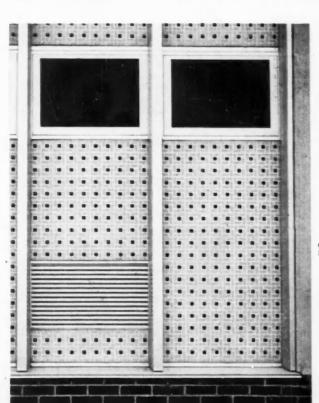
9100 west belmont avenue . franklin park, illinois CANADIAN PLANT: 43 racine rd. (rexdale P.O.) toronto, canada





CERAMIC TILE CURTAIN WALL PANELS

offer new freedom in exterior design



Used alone, or in conjunction with conventional exterior finishes, RS Ceramic Tile Panels offer the designer unlimited latitude in choice of color, texture and pattern. Here is the permanence and maintenance-free beauty of time-proven ceramic tile, delivered to job-site in light-weight, custom-made prefabricated units, ready for simple, speedy erection in any frame. A favorable unit price combined with low installation cost makes RS Panels an outstanding value. Want more information? Call your nearby Romany Spartan sales representative, or write for full-color Bulletin RSP-202.

Ceramic Tile Panels, Inc., Dept. AR-11, Canton 2, Ohio.

Close-up showing detail of RS Ceramic Tile Panels design

RS Pavels

CERAMIC TILE PANELS, INC.

A subsidiary of United States Ceramic Tile Co.

The Record Reports

Three Stores Under One Roof: Separate But Connecting

Three noncompetitive stores have opened branches in the same new building, first (and principal) unit of the Vernon Hills Shopping Area in Eastchester, N. Y., for which Copeland, Novak and Israel are the architects.

The stores have separate exterior entrances (and identities), but are interconnecting from within, without any doors or gates. Merchandise groupings have been coordinated among the three stores to comple-

DE PINNA

FAO GEORG SCHWARZ JENSEN

HAWS

BEST FOR NEW IDEAS

in water coolers . . . and flush valves





Haws Wall Mounted "Off the Floor" Water Coolers break with tradition to "clear the deck" for uncluttered maintenance ease. Crisp styling and the completely enclosed plumbing-electrical unit make this distinctive cooler a Haws "first"—in beauty and engineering!

Haws-Kramer Residential Flush Valve System utilizes the newlydeveloped Nyla-Phragm valve to reduce bathroom flushing noises and eliminate long, noisy tank refill. And here's another "first": outof-sight H-K "Silent Service" operates with *conventional residential* pipe sizes!

Specify these new Haws items. See them in Sweet's Architectural File or write for complete Haws catalog-today!



DRINKING FAUCET COMPANY

1441 FOURTH STREET . BERKELEY 10, CALIFORNIA



HAWS / KRAMER FLUSH VALVE DIVISION 819 Bryant Street • San Francisco 3, California

EXPORT DEPARTMENT: 19 Columbus Avenue . San Francisco 11, California . U.S.A.





ment one another—DePinna's Linens and Domestics Department has been placed adjacent to Georg Jensen, Inc.'s dinnerware and giftwares, and its children's area leads directly to the F.A.O. Schwarz toys. The effort was to maintain complete character and identity for each establishment while creating "one homogeneous concept of integrated selling" for the three.

Interiors of the DePinna and Schwarz stores were designed by Copeland, Novak and Israel; the Jensen interior is by Finn Juhl. Bianco & Pope were the builders.



more news on page 52



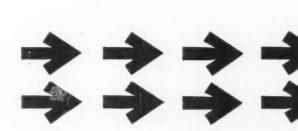


AIR-COOLED CONDENSERS

↑↑

ALWAYS FACED RIGHT -NO MATTER WHAT THE WIND DIRECTION







Exclusive Aimco fintube design provides high-heat dissipating efficiency for circular Fandaire condensers.



/UB/

No need to position circular Fandaire Air-Cooled Condensers to meet prevailing winds. Just set it anywhere for easiest piping.

Here's the newest, most advanced air-cooled condenser on the market—Fandaire! This modern low silhouette condenser is engineered around a new high-heat dissipating fintube of exclusive design and manufacture. In operation, the entire spiral of fintubing is surrounded with a circle of swiftly moving cool air for highest cooling efficiency. Every degree in temperature drop is fully utilized as this circular design captures the wind from any direction, regardless of placement or location. A powerful fan pulls cool air in and pushes warm used air up and away. Fandaire's constant gravity tube drainage gives continuous movement to condensate.

With its low, clean-lined silhouette, Fandaire does not detract from the general architectural effect of the building. And weighing $\frac{1}{3}$ less than conventional installations, the Fandaire usually can be positioned where needed, without guy wires or extra bracing. Savings in piping and installation alone may be considerable.

Where there is a problem of architectural compatibility, or of cost or performance, chances are the new Fandaire Air-Cooled Condenser is the best solution. Engineered in sizes from 3 to 120 tons per unit, there is a Fandaire model for practically all single or multiple installations. Get complete information today.

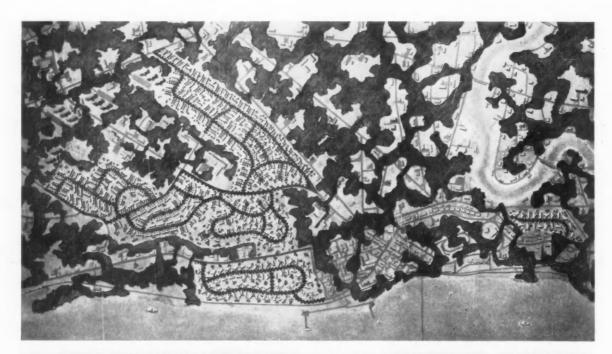
specialists in circular air-cooled condensers

AIMCO PRODUCTS CORPORATION

801 West 21st Street, Tulsa, Oklahoma • A Subsidiary of

YUBA CONSOLIDATED INDUSTRIES, INC.

Sales Offices in Atlanta • Buffalo • Chicago • Cleveland • Houston • Los Angeles • New York • Philadelphia • Pittsburgh • San Francisco • Seattle







Architects-Engineers: Kelly & Gruzen, New York; George G. Shimamoto, AIA Associate • General Contractor: S. S. Silberblatt Incorporated, New York • P&H Contractor: Northeastern Construction Co., Plattsburgh • Pipe Distributor: E. J. Monroe Co., Plattsburgh

Steel pipe serves hot-water heating system of 1,685-unit Armed Services Housing Project

One of the largest housing developments in the country is the \$27,500,000 project recently completed at Plattsburgh A.F.B., New York. Spread over 235 acres, the 396 buildings will accommodate Air Force officers, enlisted men, and their families.

A centralized hot-water heating system will keep

the buildings comfortable even in the coldest of winters. And for the greatest of economies, the system was built with steel pipe—some 450 tons of Bethlehem Electric Resistance-Weld and Beth-Co-Weld steel pipe were used on the job.

For low original cost, low installation cost, and low maintenance, there's no substitute for steel pipe, the most economical and the most widely used general-purpose piping in America.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

Export Distributor:

Bethlehem Steel Export Corporation

STEEL PIPE IS FIRST CHOICE

for lasting strength economy workability

insist on

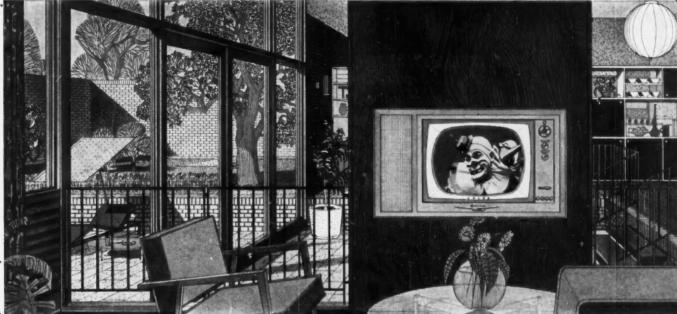
STEEL PIPE MADE IN USA

BETHLEHEM STEEL



Now RCA VICTOR Built-in TV and Stereo... expressly designed for today's modern homes

SERVES YOU THROUGH ELECTRONICS



"LIVING COLOR" MURAL TV. Like 2 sets in one, build in the magic of Color TV

picture, 3-speaker panoramic FM sound, adaptable for stereo. Above, The DK107 Frame for rear ventilation. Front ventilation design also available



B&W MURAL TV ... Another Newsmaker! The custom TV look plus the convenience of "wireless wizard" remote control. Full feature monochrome performance - 25% brighter picture 3-speaker Panoramic sound. Above, The DK103 designed for front ventilation, re-



PUSH BUTTON RADIO-VICTROLA®... High Fidelity Stereo. Monaural and stereo 4-spee record changer that sildes out for easy loading, stereo AM-FM. Tuner, visual Stereo Balance Control, 2 in 1 supercharged chassis with 58 watts of power. Above, the BK2 shown with DK109 Panoramic Sound, 3-speaker units. (*8/CA Trade Mark for Record Players)

These solid value Built-ins sell houses!



Everything is built in," says the wife. "... and look at that builtin Color TV!" says the husband. We'll leave it

to you builders how often such comments · can clinch the sale.

RCA Victor Built-in units for 1960, the first complete Built-in line in the industry, are engineered with newsmaking style, performance and dependability. They're designed to mount in walls, wall cabinets, room dividers . . . adaptable to almost any spot where families meet to enjoy TV and music.

RCA Victor sales engineers are prepared to discuss plans, models and costs with you. Their experience will be helpful. Write for complete information and literature to RCA Sales Corp., Box 1226-K, Phila. 5, Pa.

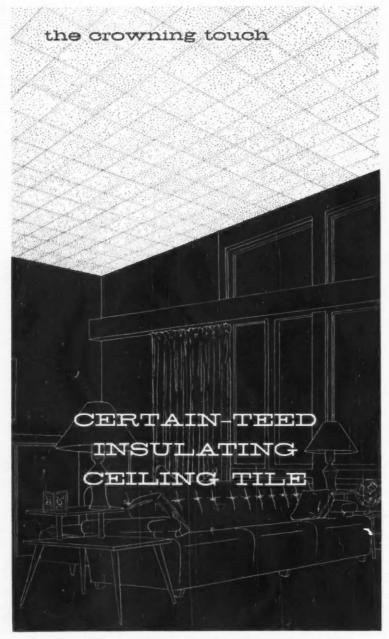
See RCA Victor's complete line of built-ins at the NATIONAL HOME **BUILDERS SHOW** Jan. 17-21 Space 923-25 Chicago Coliseum



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The look of elegance with insulated comfort. Prefinished in light-reflecting, flame-resistant white, in perforated or plain pattern. Ideal for residential, commercial or institutional applications. Tongue and groove joints conceal nails or staples. Available 1/2" thick in these sizes: Certile (plain) 12" x 12"; 12" x 24"; 12" x 24" centerscored; 16" x 16"; 16" x 32". Perforated 12" x 12"; 12" x 24" centerscored.



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The Record Reports



Texas Town's New Building Starts Downtown Mall

Plans have been announced in Beaumont, Tex., for a 14-story office building to be known as the American Building, the first major office building to be erected in Beaumont in 31 years. The new building, to be constructed as a joint venture by the Centex Construction Co., Inc., and real estate developer Raymond D. Nasher, will be integrated in planning with the projected new building for the American National Bank adjacent to form a block-long mall-type office and shopping center. The American Building itself will have shops as well as a lobby on the ground floor opening onto the landscaped mall. It will have an overall area of 211,706 sq ft, exteriors of marble, masonry, aluminum and glass. Architects for both new buildings are Harrell & Hamilton.

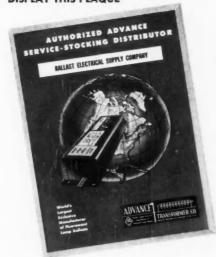


BUSINESS PROFESSIONS BUILDING has been designed and built for themselves at 110 East 30th Street, New York City, by a group of architects as an office building for professional and service firms for which location in a quiet residential area is desirable. Remodeled at a cost of \$185,000 from the shells of two old brownstones, the building has seven floors of 2200 sq ft each, a façade of glass and glazed brick. S. R. Rosenberg, architect; A. N. Sirof and William E. Sivertsen, architects and engineers

more news on page 56

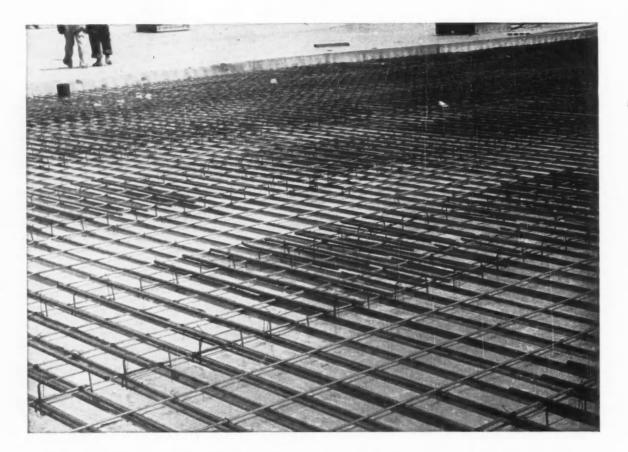


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Laclede multi-rib round reinforcing bars shop welded into special prefabricated units saved hours of costly time in the construction of floor slabs for Chrysler Corporation's new St. Louis Assembly Plant. Eighty-seven thousand of these top and bottom steel reinforcing units, each consisting of two bars up to 15' long welded to supporting frames, were used in the construction of 485,000 square feet of flooring.

Fabricated to extremely accurate dimensions, units were easily handled and dropped into place on the metal deck. Approximately 100,000 ties were saved by the use of these special Laclededesigned units.





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Smooth Coral

A Washington Report by Ernest Mickel

ARCHITECTS AID HHFA IN PLANNING FOR WHITE HOUSE CONFERENCE ON AGING

Architects are well represented on the new planning committee on housing established within the Housing and Home Finance Agency to help that agency with its contribution to the general White House Conference on Aging to be held in Washington, D. C., January 9-12, 1961.

Walter K. Vivrett, A.I.A., HHFA's chief adviser on housing for the elderly and assistant professor of architecture at the University of Minnesota, now has been named Technical Director (Housing) for the conference. In this capacity he has announced the names of his planning group—17 in all—which will identify the subjects to be discussed at the housing round-tables in January of 1961.

This committee held its first meeting in Washington on November 30 and conferred with Mr. Vivrett on the problem areas in housing for the aging. No recommendation will come from this unit, the general conference itself being charged with issuing firm proposals after its meetings.

Architects serving on HHFA's planning committee are William Keck, A.I.A., of the firm of George Fred Keck—William Keck, Chicago, and Preston S. Stevens, A.I.A., of the firm of Stevens & Wilkinson, Atlanta. Chairman of the group is Walter C. Nelson, Minneapolis, president of the Mortgage Bankers Association of America.

Mr. Vivrett said his new committee had reviewed progress on the working paper he is preparing as background for the housing portion of the White House Conference. It also will assist the various states in the selection of delegates to the conference, he explained.

The background paper on housing, in its early stages, was outlined with six general subject sections: (1) housing needs; (2) extent to which needs are being met; (3) current efforts, organized programs, trends; (4) framework for providing housing, some limitations and obstacles; (5) current issues; and (6) gaps in knowledge which need filling.

Housing for Aging Up Sharply

As part of his early work in preparation for the conference, Mr. Vivrett has surveyed the housing for aging inventory in 1958, comparing it with 1950. He found that nearly every state had increased its facilities during the period, with additional construction running 50 per cent to 250 per cent over the eight years. Construction of facilities for older persons has more than kept pace with population increases in the age group, he noted.

A part of the continuing survey will be a measure of the facility increase by institutional identification.

The background document will be published next spring to give conference delegates reference material prior to the 1961 meeting.

The planning committee in HHFA is not to be confused with the advisory committee to the Health, Education, and Welfare Department, which now numbers almost 150 persons.

FEDERAL COUNCIL ON AGING SUBMITS

"REPORT OF INQUIRY": ACTION TO COME

The Federal Council on Aging has submitted its first report to President Eisenhower, described as a "report of inquiry" by Council Chairman Arthur S. Flemming, Secretary of Health, Education, and Welfare. It includes shelter as one of the basic areas for consideration in defining resources and programs of the Federal government.

Secretary Flemming's letter of transmittal to the President stated:

"The work of the Council during its first months of activity as a Cabinet-level committee has been, first, to take a measure of what is being done, and second, to sharpen the focus of responsibility in the field of aging of the several Departments and agencies.

"This foundation will provide a solid base on which to develop sound proposals and projects. Accordingly, we plan to submit a further report showing action and findings on matters listed herein."

The Council membership also includes Robert B. Anderson, Secretary of the Treasury; Ezra Taft Benson, Secretary of Agriculture; Frederick

H. Mueller, Secretary of Commerce; James P. Mitchell, Secretary of Labor; Sumner G. Whittier, Administrator of Veterans Affairs; and Norman P. Mason, Administrator of the Housing and Home Finance Agency.

Income Noted as Key

Despite the fact that age alone does not automatically bring about a housing problem, the report notes, there are shelter problems among the elderly, especially in the lower income groups.

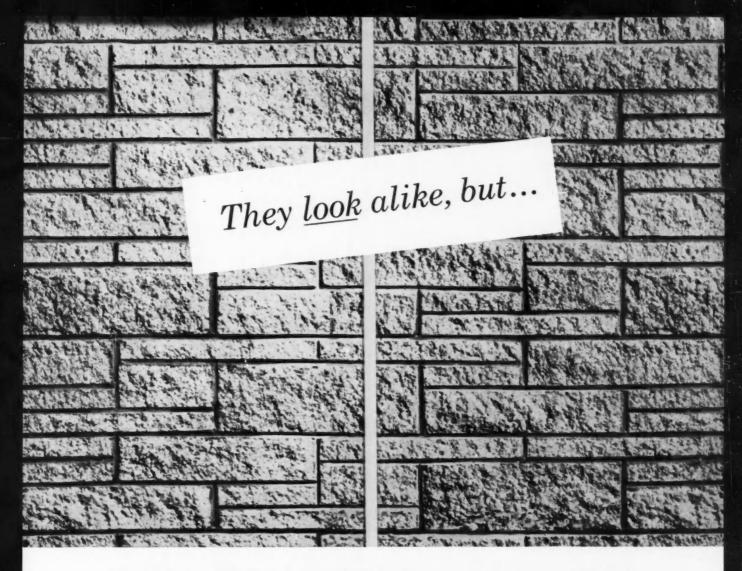
A substantial number of old people is well housed; two thirds of those 65 or over own their own homes. Yet a 1950 study showed that twice as many houses owned and occupied by older persons were in poor condition as those owned by younger people. Almost twice the proportion of older families occupied low rental (\$30 monthly) quarters as younger families, suggestive of low quality conditions.

It was noted that while the high rate of home ownership is an offsetting consideration, the fact remains that three fifths of people 65 and over have less than \$1000 annually in actual money income.

Federal programs are helping increasing numbers of younger families to be so housed as to minimize their shelter problems as they age. the Council reported to the President. Some 80,000 aged persons of lowincome living in Federally-aided low rent projects and substantially larger numbers of older people living in FHA-insured houses and apartments are comfortably quartered in units they moved into before they were elderly. But the report notes that there are many other elderly persons who need living quarters better suited to their needs.

Federal Program Enlarged

In three years, it was shown, the Federal Housing Administration has agreed to insure mortgages on 61 projects involving 6793 units with a mortgage amount of \$60,845,150. The continued on page 248



it takes Dur-o-wal to keep them alike!

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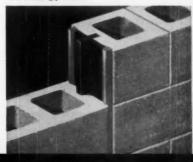
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FHA Studies New Standards For Multi-family Housing

The Federal Housing Administration began work in earnest on its revision of the Minimum Property Requirements for multi-family housing. The new Minimum Property Standards issued earlier this year from the agency's architectural standards division applied only to one- and two-family dwellings.

The new advisory committee on the rental housing revisions will convene shortly in Washington, D. C.,

to review the needs and progress of the program at that point. It probably will take a year to perfect the new standards on multi-family hous-

Before these are issued, a number of specific item changes can be expected on subjects such as room count and corridor length. In certain limited areas-such as materials use the new MPS for one- and twofamily units are applied by reference to rental housing structures.

William S. Brown, formerly staff architect at the Building Research

Advisory Board, joined the FHA division December 1, 1959 to work on the general revision of MPR for the multiple unit dwellings. He worked on BRAB's technical studies for FHA before changing positions.

Jet Runway Length Maximum Fixed in Federal Ruling

The Federal Aviation Agency made absolutely final as a maximum figure the 10,500-ft length of airport runways for new jet aircraft.

James T. Pyle, deputy administrator of FAA, said that in the future the agency would not provide any Federal aid to communities for construction of runways greater than this length.

The limitation was announced following a series of meetings in which airport authorities, manufacturers, carriers and FAA personnel participated and Mr. Pyle insisted it was not an arbitrary figure but one based on sound economics.

Enrollment Uptrend Continues, New College Survey Shows

Greater and greater demands are being placed on higher education facilities, with enrollments increasing year after year. College and university student enrollment figures for the start of the 1959-1960 scholastic year showed an all-time enrollment high of 3,402,297 students, 4.4 per cent more than the number in colleges and universities the year be-

These Office of Education statistics showed that the number of students enrolled in colleges for the first time rose to 826,969, a jump of 5.9 per cent or 45,894 over the fall of 1958. The 1959 fall rosters included 2,173,797 men and 1,228,500

The Office of Education survey on which the figures were based included all degree-credit students; those whose current program consists principally or wholly of work leading toward at least a bachelor's degree.

A.I.A. Board Adopts Policy On Retained Percentages

The issue of retained percentages, raised anew this year as subcontractor, contractor, and credit groups petitioned the American Institute of Architects to change its stand (and preferably its contract documents) on this matter, may well have been continued on page 270



Why concrete floor slabs cost less with EGSCO PERMANENT STEEL FORMS

EGSCO SHEETFORM

2 corrugation profiles 34 or 293/4 inch widths 24 or 28 gays steel 12 foot lengths

EGSCO SQUAREFORM

2 corrugation profiles 28½ or 29½ inch widths 26 or 28 gage steel 12 foot lengths

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One profile 27" width, 12 ft. length 24 or 28 gage steel

Labor costs are less because EGSCO high strength Sheetform is fastened directly to the support members by weld, bolt or nail. Large areas are quickly covered, no extra temporary support is needed and there is no form stripping or cleanup-and no underside cement finishing.

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Concrete costs are less with EGSCO Sheetform than with paper-backed mesh because there is no useless and unsightly sag between supports to be filled with concrete.

EGSCO Sheetform presents an attractive underslab appearance and a smooth painting surface. Made in either galvanized or plain steel.

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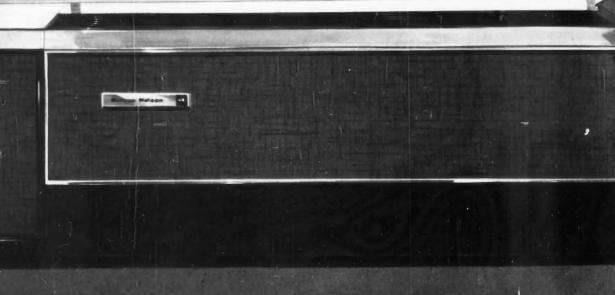
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... and follow flexibility brings the cost within any school budget!

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And exclusive Herman Nelson options (optional) accessories, optional air conditioning) make it easy to tailor your system to fit your school budget!

This new-color, new-function styling is available on all Herman Nelson unit ventilator equipment—whether the equipment provides for air conditioning or for heating, ventilating and natural cooling only. (See back of insert for more details.)



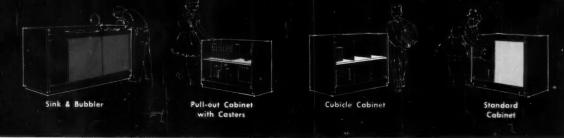
air conditioned...and breathtakingly beautiful

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This brand new styling makes the famous Her-Nel-COOL air conditioning unit ventilator more versatile than ever! New HerNel-COOL III units can be installed now (with your choice of color, your choice of functional accessories, and with the famous DRAFT/STOP method for combatting window downdrafts) so that your school enjoys the usual benefits of unit ventilation. Then, at any time, immediately, or whenever the budget will allow it, the addition of a packaged liquid chiller is all that's needed for complete hot weather air conditioning. Fact kit gives details.

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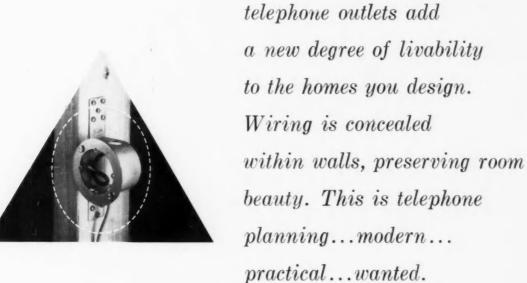
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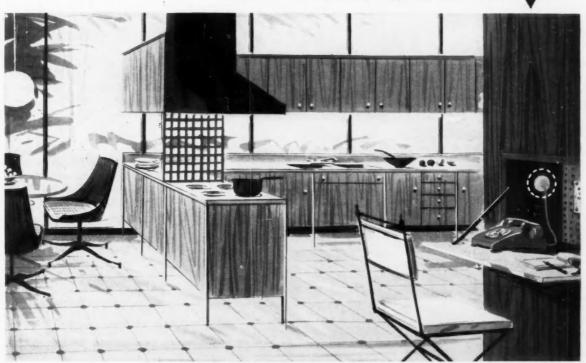
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Bulletins and engineering data are available to Architects and Engineers from Chicago Pump Company or its Distributors located in most principal cities.



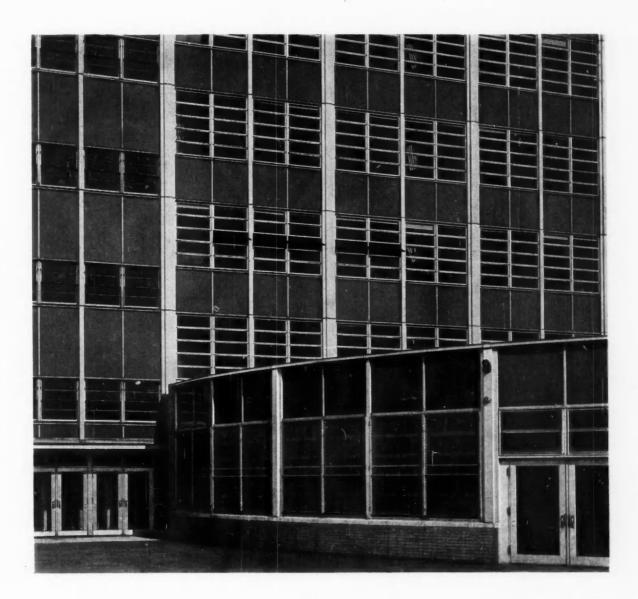
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Construction Cost Indexes

Presented by Clyde Shute, Director of Statistical Policy, Construction News Div., F. W. Dodge Corp., from data compiled by E. H. Boeckh & Assoc., Inc.

Labor and Materials: U.S. average 1926-1929=100

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PERIOD	Brick	Frame	Brick and Concrete	Brick and Concrete	Brick and Steel	Brick	Frame	Brick and Concrete	Brick and Concrete	Brick and Steel
1930	127.0	126.7	124.1	128.0	123.6	82.1	80.9	84.5	86.1	83.6
1935	93.8	91.3	104.7	108.5	105.5	72.3	67.9	84.0	87.1	85.1
1939	123.5	122.4	130.7	133.4	130.1	86.3	83.1	95.1	97.4	94.7
1947	219.3	222.0	207.6	207.5	203.8	180.4	184.0	158.1	157.1	158.0
1948	250.1	251.6	239.4	242.2	235.6	199.2	202.5	178.8	178.8	178.8
1949	243.7	240.8	242.8	246.6	240.0	189.3	189.9	180.6	180.8	177.5
1950	256.2	254.5	249.5	251.5	248.0	194.3	196.2	185.4	183.7	185.0
1951	273.2	271.3	263.7	274.9	271.8	212.8	214.6	204.2	202.8	205.0
1952	278.2	274.8	271.9	265.2	262.2	218.8	221.0	212.8	210.1	214.3
1953	281.3	277.2	281.0	286.0	282.0	223.0	224.6	221.3	221.8	223.0
1954	285.0	278.2	293.0	300.6	295.4	219.6	219.1	233.5	225.2	225.
1955	293.1	286.0	300.0	308.3	302.4	225.3	225.1	229.0	231.5	231.8
1956	310.8	302.2	320.1	328.6	324.5	237.2	235.7	241.7	244.4	245.4
1957	318.5	308.3	333.1	345.2	339.8	241.2	239.0	248.7	232.1	254.7
1958	328.0	315.1	348.6	365.4	357.3	243.9	239.8	255.7	261.9	262.0
Aug. 1959	344.6	331.4	370.4	388.5	376.9	254.9	249.9	269.5	276.2	276.
Sept. 1959	344.9	331.7	370.8	388.5	376.9	254.9	249.9	269.5	276.2	276.
Oct. 1959	344.9	331.7	370.8	388.5	376.9	254.9	249.9	269.5	276.2	276.
Oct. 1959	179.3		% increase over 19:		189.7	195.4	96 200.7	increase over 1939	183.6	191.

ST. LOUIS	SANI FRANCISCO
31. LOUIS	SAN FRANCISCO

1930	108.9	108.3	112.4	115.3	111.3	90.8	86.8	100.6	104.9	100.4
1935	95.1	90.1	104.1	108.3	105.4	89.5	84.5	96.4	103.7	99.7
1939	110.2	107.0	118.7	119.8	119.0	105.6	99.3	117.4	121.9	116.5
1947	202.4	203.8	183.9	184.2	184.0	193.1	191.6	183.7	186.8	186.9
1948	227.9	231.2	207.7	210.0	208.1	218.9	216.6	208.3	214.7	211.1
1949	221.4	220.7	212.8	215.7	213.6	213.0	207.1	214.0	219.8	216.1
1950	232.8	230.7	221.9	225.3	222.8	227.0	223.1	222.4	224.5	222.6
1951	252.0	248.3	238.5	240.9	239.0	245.2	240.4	239.6	243.1	243.1
1952	259.1	253.2	249.7	255.0	249.6	250.2	245.0	245.6	248.7	249.6
1953	263.4	256.4	259.0	267.0	259.2	255.2	257.2	256.6	261.0	259.7
1954	266.6	260.2	263.7	273.3	266.2	257.4	249.2	264.1	272.5	267.2
1955	273.3	266.5	272.2	281.3	276.5	268.0	259.0	275.0	284.4	279.6
1956	288.7	280.3	287.9	299.2	293.3	279.0	270.0	288.9	298.6	295.8
1957	292.0	283.4	295.2	307.1	302.9	286.3	274.4	302.9	315.2	310.7
1958	297.0	287.9	304.9	318.4	313.8	289.8	274.9	311.5	326.7	320.8
Aug. 1959	306.9	297.5	317.0	332.0	326.0	298.3	285.0	320.8	334.7	327.9
Sept. 1959	306.9	297.5	317.0	332.0	326.0	303.3	287.8	327.7	344.2	334.3
Oct. 1959	306.9	297.5	317.0	332.0	326.0	303.3	287.8	327.7	344.2	334.3
	% increase over 1939					% increase over 1939				
Oct. 1959	178.5	178.0	167.0	177.1	173.9	187.2	189.8	179.1	1 182.4	186.9

Cost comparisons, as percentage differences, for any particular type of construction, are possible between localities, or periods of time within the same city, by dividing the difference between the two index numbers by one of them; i.e.:

index for city A = 110 index for city B = 95

(both indexes must be for the same type of construction).

Then: costs in A are approximately 16 per cent higher than in B.

$$\frac{110 - 95}{95} = 0.158$$

Conversely: costs in B are approximately 14 per cent lower than in A.

$$\frac{110 - 95}{110} = 0.136$$

Cost comparisons cannot be made between different types of construction because the index numbers for each type relate to a different U. S. average for 1926-29.

Material prices and wage rates used in the current indexes make no allowance for payments in excess of published list prices, thus indexes reflect minimum costs and not necessarily actual costs.

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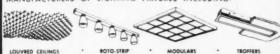
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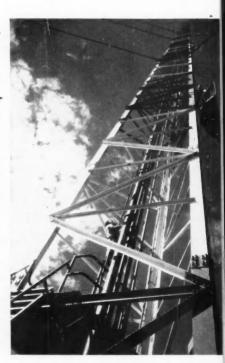




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TEXAS TV STATION ... 263,-000 watts. This Caterpillar Diesel Engine installation was purchased through competitive bidding and ability to do the job. Owner reports: "It will put a picture back on the screen in seconds. All the operator does is wait for the engine to start."

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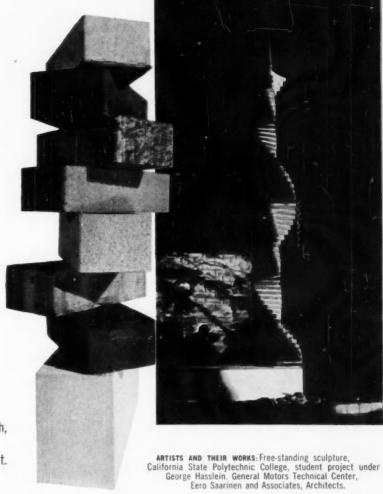
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Required Reading

Crystal Palace, London, 1851; Joseph Paxton. View over the roof toward the entrance hall



History Judged Good Source On Modern Architecture

A HISTORY OF MODERN ARCHITECTURE. By Jürgen Joedicke. Translated by James C. Palmes. Frederick A. Praeger, Inc., 15 W. 47th St., New York 36, 243 pp., illus, \$10.

BY JONATHAN BARNETT

It is necessary to say at the outset that the publication of this book is not that long-awaited event, the presentation of a satisfactory history of modern architecture. This is particularly unfortunate because the work seems to possess almost every qualification for success at this difficult task. It is obviously the product of very extensive scholarship, it is cogent, perceptive, and well illustrated. There is even a fair measure of an ingredient too seldom present in architectural histories, the analysis of buildings in terms of structure as well as form. Regrettably, however, the final effort of integration seems to be missing, and the book somehow does not manage to fuse its subject matter into a coherent history

The key to the problem seems to be a matter of definition. Is modern architecture a special current discernible within the general flow of architectural history, or is it the sum of all the building that has taken place in modern times? Mr. Joedicke apparently takes the position that modern architecture began as the former and has now virtually attained the latter status. Thus he begins with a concise consecutive narrative and ends with a diffuse compendium of recent buildings considered under diverse headings. He complicates the question further by breaking the chronological series whenever a major figure appears on the scene in order to follow his architectural career up to the present. As a result, the reader must assimilate a constantly fluctuating time scale in which the Harvard Graduate center is presented before the Barcelona Pavilion, and Ronchamp appears before the De Stijl movement. When his history has been brought up to 1930, the author abandons any sort of total chronological scheme entirely, in order to trace the evolution of skeleton frame construction and of new spatial conceptions. The book then concludes with 11 separate histories of the development of modern architecPilgrimage Church, Syracuse, Italy (project), 1957; Enrico Castiglioni. Irregular hexagonal plan; outside walls of masonry. Reinforced concrete shell roof resting on three free-standing piers and on six supports set in the outside walls



ture in various countries, in which a certain amount of material is actually repeated.

To be successful, a history which is selective rather than exhaustive, and which departs from a chronological narrative, must needs be founded on some sort of analytical framework. And yet Joedicke not only does not set forth the basic assumptions that define his view of modern architecture, but chooses to remain enigmatic about the question of whether modern architecture accomplished its march from the Crystal Palace to such a building as Castiglioni's project for a Pilgrimage Church without any change in essential principles.

To this and to other questions the reader must provide his own answers. The author declines to present any clues, either in the form of a unified chronological sequence of events or by a rigorous theoretical analysis. In fact, so much is left to the reader that the work tends to resolve itself into a source book, or a published series of lectures. Considered in this light, it is brilliantly successful, not as history, but as a thorough and perceptive assemblage of the materials from which history is made.

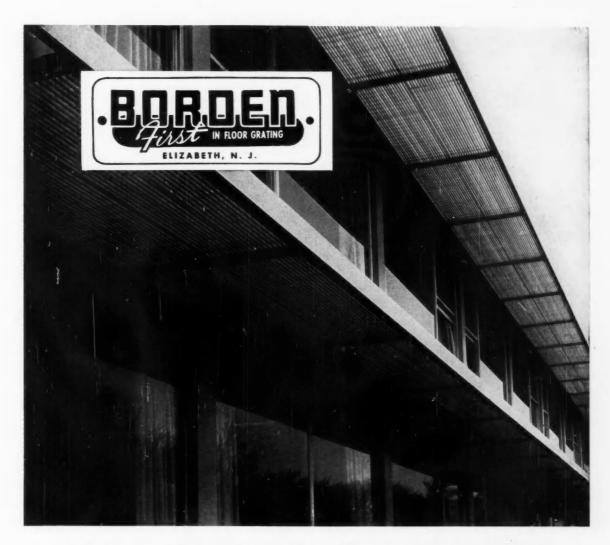
Architecture, Design Explored

CHARLES DONAGH MAGINNIS, F.A.I.A., 1867-1955: A SELECTION OF HIS ESSAYS AND ADDRESSES. Edited by Robert P. Walsh, A.I.A., and Andrew W. Roberts. Privately printed. New Haven. Available from Andrew W. Roberts, 1141 Hollywood Ave., Linden, N. J. 51 pp., illus. \$4.50.

THE COLLECTED WRITINGS OF ALVIN LUSTIG. Edited by Holland R. Melson, Jr. Introduction by Philip Johnson. Privately printed, New York. Available from Holland R. Melson, Jr., 1215 Park Ave., New York 28, 95 pp., illus. \$3.50.

These two books, profoundly different in attitude and spirit, have nonetheless a basis for inclusion in a single review. Each is a posthumous collection of short essays and speeches by a man active in the arts. Both books were published, edited, and designed by individual students in the graphic arts department of the Yale University School of Art and Architecture. The books are primarily exercises in the art of book design and exhibit a high degree of care in typography and format.

Charles Donagh Maginnis, the distinguished Irish-born architect who headed a firm in Boston from 1898 until his death in 1955, will be remembered longest for the felicity and wit of his language. Those architects fortunate enough to have been present at the occasions at which he made speeches should welcome a book which includes the best of them, and it is good to have three of his finest essays in this single collection. For those too young to remember Mr. Maginnis, some quotes: ". . . This is not to say that democracies have more indifference to beauty but only that in their tolerant nature they have less capacity to compel it. Our olfactory nerves are protected by legislative act but our optics still cry vainly for mercy." In reference to the assumption that architecture will capitulate to engineering: "Once, at a convention of our presumptive rivals, the president in his address invested his profession continued on page 76



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Required Reading

so liberally with prerogatives that, when my turn came, I was left only to apologize for a wasted career. Defensively, I submitted as the difference between an engineer and an architect that, while both must keep their feet on the ground, the architect has to keep his head in the stars."

The career of Alvin Lustig was cut short by his tragic death at the age of 40. He practiced graphic, interior, and industrial design with great skill but refused a specialist's label. He wrote: "The words graphic designer, architect, or industrial designer stick in my throat, giving me a sense of limitation, of specialization within the specialty, of a relationship to society and form itself that is unsatisfactory and incomplete. This inadequate set of terms to describe an active life reveals only partially the still undefined nature of the designer." Philip Johnson says of Lustig's work in his introduction to this book: "It was part architecture, part industrial design, part typography, part advertising . and all of it art." The book includes general notes on graphic design, architecture, and design educa--MILDRED F. SCHMERTZ

Notre-Dame in Depth

NOTRE-DAME OF PARIS. By Allan Temko. Viking Press, 625 Madison Ave., New York 22. 338 pp. illus. (Compass paperback). \$1.75.

This reprinting of Allan Temko's 1952 work represents a real bargain, for Notre-Dame of Paris is a detailed, multi-faceted, vividly written story of the life and times of one of Western civilization's most important buildings. The book is highly recommended to anyone who missed it the first time around.

Temko's history stretches from Druidic Gaul to the liberation of Paris in 1944, but most of it, of course, concerns the period from the decision to build Notre-Dame in 1160 to its completion in 1351. The author has been most successful in portraying the complex religious, political, social, and artistic changes during those two centuries of ferment through their effect on the cathedral. The influence of the cult of the Virgin on Medieval building is especially well shown. Of particular interest to the architect is the extensive analysis of ogival construction techniques, admirably illustrated, which the author utilizes to demonstrate the evolution of Gothic style. -ARTHUR FISHER

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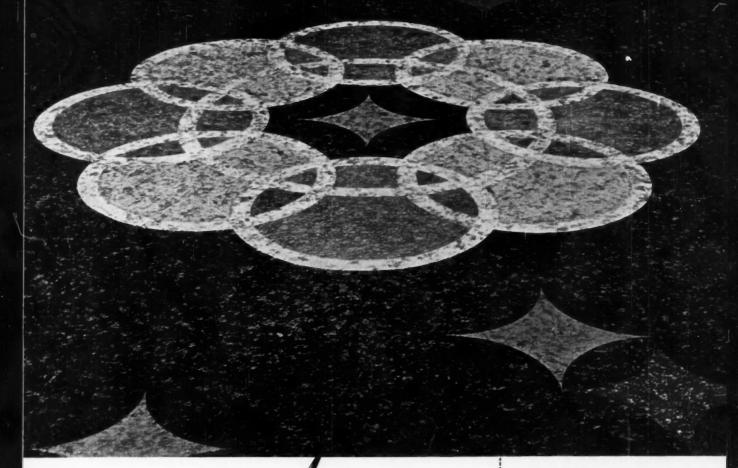
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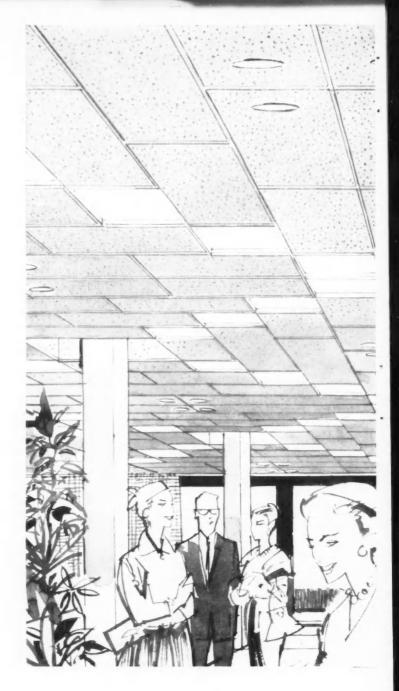
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plan by George L. Dahl Architects & Engineers Dallas, Texas

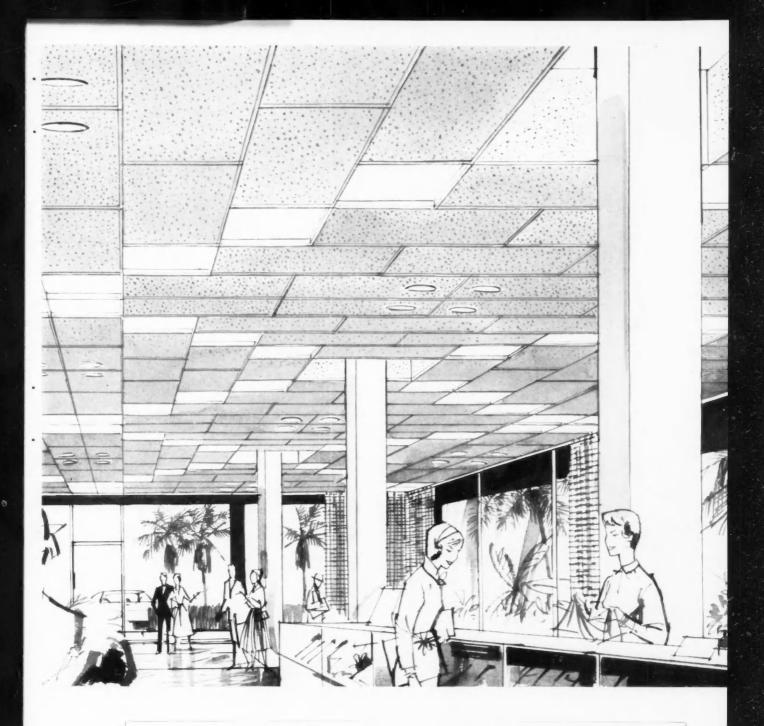


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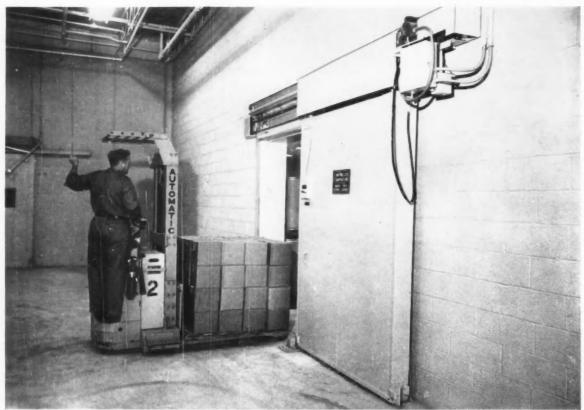
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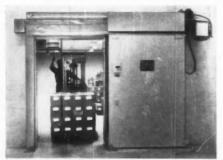
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PERMIT NO. 32 BRAZIL, INDIANA a new direction in

SUN CONTROL

with SUN SOLAR SCREEN

Facade design that features a dominant use of glass becomes as practical as it is desirable. New SUNBAR Solar Screen by ARKETEX makes this a striking reality—through smartly functional design that shades off 85% of glass heat gain. Air conditioning installations of lower tonnage can be specified safely in initial plans, because equipment load is reduced substantially by SUNBAR. And operating costs are sharply lowered with this ceramic glazed solar screen deflecting Old Sol's heat and glare.

Because SUNBAR hides wall areas, real construction economies may also be gained. Spandrel walls may be of inexpensive non-facing materials. On all floors of a multi-story building, columns may be built flush with the interior wall surface and left exposed on the exterior . . . and varying column dimensions do not interfere with interior planning.

Nor is SUNBAR of value solely for non-residential exterior design. Dramatic interiors can be achieved for buildings and homes alike. Used as privacy screens, garden walls, interior space dividers . . . to screen carports, patios, swimming pools, or to conceal any unsightly areas around a house or building . . . SUNBAR adds decorative elegance most economically.

ARKETEX CERAMIC CORPORATION

BRAZIL, INDIANA

A.P. No. 07 Printed in U.S.A.

The new direction	in which Arketex	ceramic glazed	structural tile can
be utilized is most	interesting. Plea	se send me liter	ature about

☐ Straight-Line design

Direction Colors

SUNBAR solar screen tile

☐ SOUNDBAR acoustical tile

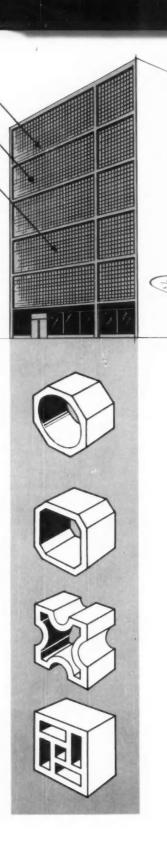
☐ I would like to see your local distributor to discuss use of Arketex products in buildings I am designing.

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TITLE OR

ADDRESS

FUNCTION



Send this postage-paid postcard for complete data on any or all ARKETEX Structural Ceramics for Better Architecture

LARGEST POWER-OPERATED GYM SEAT INSTALLATION IN THE COUNTRY!

Seating May Set Pattern For Future

Seating in the new Rock Island High School Fieldhouse may become a model for buildings of this type throughout the nation.

The main sections of bleachers, which can be opened and closed simply by pressing a button, are the largest installation of this type to be installed in any building in the United States.

The manufacturer of the bleachers, Medart Seating Co., St. Louis, has been using the Rock Island installation to show customers. The Rock Island installation may be advertised in trade journals to show the use of retractable seating in a building of its size.

Located along the east and west walls of the fieldhouse, the main sections of bleachers range from 70 to 75 feet wide. These sections on both the main playing floor and balconies may be opened and closed in a matter of minutes from a central control point. The bleachers are moved by electric motors.

Never before have retractable bleachers been used in such large sections, according to Benj. A. Horn, architect.

Seat 6.110 Persons

The bleachers to seat 6,110 persons were installed at a cost of about \$90,000. This type of seating was purchased to give the maximum use of floor space for physical education classes.

Risers on the new bleachers are treated with a pigmented varnish to make their color lighter to blend with the attractive light colors predominating the field-house. This pigmented varnish will prevent the bleachers from turning dark in years to come.

This is also the first time that this type of bleachers has been treated with the pigmented varnish, Horn said.

The installation of this type of seating in the new fieldhouse is an indication of the farsightedness of the Rock Island Board of Education, Horn commented.



Whatever seating capacity is required...

POWER-OPERATION makes sense in gym seats!

Open in seconds...at the turn of a key! No muscle power, no noise, no binding, no damage to seats, walls, floors.

Close in seconds . . . just as smoothly, quietly, safely as opening operation.

Medart Power-Operated Gym Seats require no floor tracks, no extra wall reinforcements, no special construction provisions. Only regular 110-v. or 220-v. electric source is needed.

Cost? Just a fraction more than manually-operated seats—and this is soon recovered through lower maintenance and service expense. Write for catalog.





Reprinted from Rock Island Argus Rock Island, Illinois September 16, 1959

SPECIFY the best, then INSIST on it!

FRED MEDART PRODUCTS, INCORPORATED * 3540 DE KALB STREET * ST. LOUIS 18, MO.

How to take the cold out of contemporary...



Maximum ventilation and protection against rain are achieved by Andersen Wood Flexivents when operating sash is open in awning position. 18 stock sizes for your design needs. Chapel of St. James the Fisherman. Architect: Olav Hammarstrom.



For natural warmth and beauty specify Andersen WINDOWALLS ... the complete wood window unit

The Chapel of St. James the Fisherman is at Wellfleet, Massachusetts, a once flourishing Cape Cod whaling village, rich in seafaring history. Exposed wood framing and siding suggest the structural honesty of a stout wood ship. Overhead skylight and floor level fenestration achieve a luminous atmosphere for devotion. Seventy-two wood Andersen Flexivents® form a continuous window ribbon at floor level.

Versatile and adaptable Andersen WINDOWALLS offer a wide range of design possibilities with 7 basic units,

30 different types, 685 cataloged sizes...in combination, limitless possibilities for creative design.

Andersen WINDOWALLS are crafted in wood, a natural insulating barrier. They are 21.5%* more effective than aluminum sash in blocking outside heat or cold. Offer savings up to 10% in total heating and air conditioning costs. WINDOWALLS are easily painted or stained to beautiful natural wood finishes.

With all factors considered, Andersen WINDOWALLS often cost less than other windows you may have specified. Check your Sweet's File or write for Detail Catalog and Tracing Detail Files. Andersen Windows are sold by lumber and millwork dealers throughout the United States and Canada.

SASHRAE QUIDE



Designed by Frank Lloyd Wright for prefabricated construction, this house makes liberal use of Andersen Flexivent Windows with fixed and operating sash. Corner WINDOWALLS in 2-story living room give feeling of immense spaciousness.



Big, big Andersen Gliding Windows flick open sideways at a finger's touch. Solution to an irregular downhill site achieves WINDOWALL effect without sacrifice of ventilation. Motel, St. Clair, Michigan. Architect: George D. Lytle.

An invitation to patio living, thanks to Andersen Patio Wall. Gliding Windows combine economically with hinged door, offer patio access and year-around comfort. Space under windows provides for heating and wiring.







Coronado Extendo-bar for drying nylons, lingerie.



Shower Recess Unit
— handy, safe spot for
shampoo bottles, etc.



Relaxation Unit
Is luxuriously practical—
recessed for toilet
paper, cigarettes, ashtray,
magazines, papers.



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Please send your ideas	FREE col	or booklet	of new	bathroom
NAME				

beauty, these quality accessories provide practical convenience and comfort — plus blending harmoniously with either modern design or period architecture to enrich the beauty of any bath. Pioneered by Hall-Mack, these quality accessories are tailored to meet the needs of every budget. Building, buying, or remodeling—always specify and install Hall-Mack Bathroom Accessories for the touch that means so much.

A lady never tells her age – and neither do Hall-Mack Bathroom Accessories. Styled for a lifetime of gleaming

Sold by leading plumbing, tile and hardware dealers everywhere

A NEW \$100,000 LIGHTING TOOL FROM GUTH

NON-COMBUSTIBLE* GRATELITE

FOR LUMINOUS CEILINGS

Five years of time and over \$100,000 in research and engineering . . . that's what it took to create this even greater GrateLite in new $2' \times 2'$ module units.

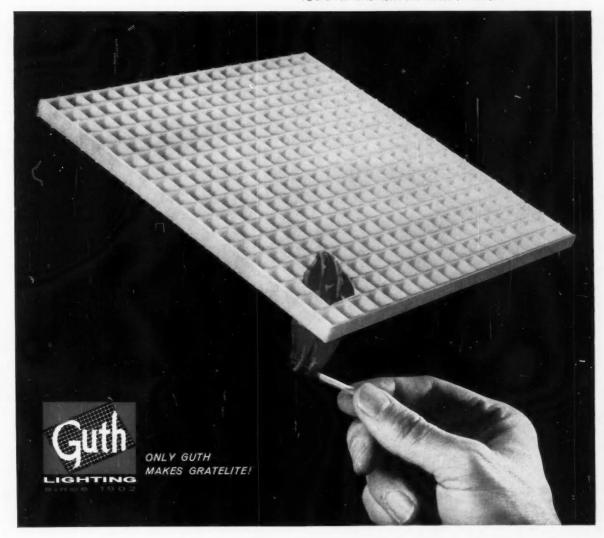
It's molded of non-combustible plastic . . . listed by Underwriters' Laboratories, Inc., as NON-COMBUSTIBLE with a low 25 rating.

Supported by Guth Una-Tee system, N. C. GrateLites can't fall out and cause panic.

And—GrateLite (with exclusive 3/8" cubicles) offers all the beauty and lighting advantages of the original GrateLite. Plus—it's non-electrostatic . . . repels dust and dirt for easiest maintenance.

WRITE FOR N. C. GRATELITE BROCHURE NOW THE EDWIN F. GUTH CO. ST. LOUIS 3, MO.

*Listed by Underwriters' Laboratories, Inc. 1® U. S. Pat. No. 2,745,001 Can. Pat. 1957, No. 538,245



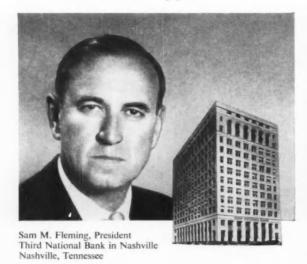
These Southeast Decision-Making WESTINGHOUSE ELEVATOR "30-MINUTE



66 Our overriding consideration in selecting the elevator system for the Electric Building was future tenant satisfaction. My associate, Henry C. Beck, Jr., and I, made this our greatest single requisite. After experiencing demonstrations of operatorless elevators, Westinghouse won hands down. We are sure our major tenant, Georgia Power Company, will enjoy the most efficient elevator service available anywhere. 9 9



66 Our study of operatorless elevators proved to our complete satisfaction that Westinghouse Selectomatic Automatic equipment was a wise choice for our main bank building. We have obtained safe, efficient elevator service from our installation which handles our heavy traffic peaks smoothly and quickly. We can heartily recommend a demonstration of Westinghouse to anyone interested in automatic equipment. 9 9



66 At the time we were considering modernization of our elevators, we were given behind-the-scenes Westinghouse demonstrations. We were impressed with the smooth operations of the cars, efficient passenger handling and the courtesy of elevators without operators. The Westinghouse reputation for reliability of product and proof by demonstration influenced our decision. 9 9



We weren't guessing when we installed Westinghouse in the new Petroleum Building in Jackson, Mississippi. I had already experienced the advantages of its Automatic Traffic Pattern and other outstanding features when, in 1954, we installed Westinghouse elevators in the Milner Building, also in Jackson. This was my first commercial office structure, and it certainly made it easy to say 'Westinghouse' when we planned the Petroleum Building three years later. 9 9

Executives Experienced the

PRE-INVESTMENT EYE-OPENER"

WESTINGHOUSE DEMONSTRATION ANSWERS YOUR IMPORTANT QUESTIONS ABOUT BENEFITS OF MODERN OPERATORLESS ELEVATORS

Westinghouse invites you to participate in a demonstration of the most advanced elevator system in the world. You must experience elevator performance to appreciate the remarkable results of Westinghouse engineering skills. Here are elevators that "think" for themselves electronically and automatically. They are as new as tomorrow—and more dependable than any elevator system previously devised. Tenants expect to find them in new buildings—and more and

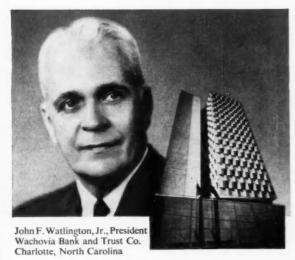
more managements of existing buildings specify them at modernization time.

Selecting an elevator system is a key decision which deserves your personal attention and approval. As a building owner or manager, it pays you well to investigate before you invest. Make arrangements to see this behind-the-scenes demonstration by calling the Westinghouse Elevator Division Sales Office in your city. Consult the Yellow Pages of your telephone directory.

WESTINGHOUSE ELEVATORS AND ELECTRIC STAIRWAYS

YOU CAN BE SURE ... IF IT'S Westinghouse

Watch Westinghouse Lucille Ball-Desi Arnaz Shows CBS-TV alternate Fridays



The elevators for our new Charlotte Building represented an important capital expenditure well worth our thorough investigation before any investment. Our study clearly demonstrated the technical quality and refinements necessary for efficient elevator service. We chose Westinghouse Selectomatic Elevators (and Electric Stairways) for this building. We are confident our decision was a wise one.



Our experience with Westinghouse elevator equipment in the past has been highly satisfactory. Witnessing an 'Eye-Opener' demonstration reconfirmed our high regard for the Westinghouse elevator system. We are more convinced than ever that our new Oil & Gas Building, with operatorless elevators by Westinghouse, will provide us with the finest vertical transportation possible.

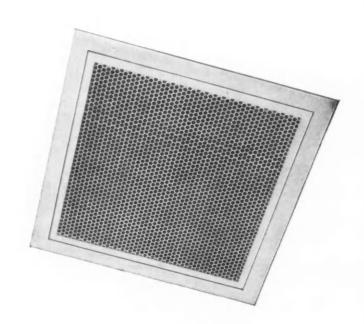
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SQUARE AND RECTANGULAR

PERFORATED AIR OUTLETS

WITH THESE PRACTICAL PERFORMANCE FEATURES

- Provide Uniform Ceiling Design
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THE ULTIMATE IN APPEARANCE AND VERSATILITY

AGITAIR PERFAIR air diffusers incorporate all the essential features to meet the architects and engineers requirements.

The architectural styling of PERFAIR, both supply and matching return units, conform to all interior designs. The interchangeable core feature and built-in air controllers permit the location of PERFAIR units in any part of the ceiling as desired by the architects.

Engineers can depend upon AGITAIR PERFAIR air diffusers to meet their every requirement maximum turbulence...aspiration...quick temperature equalization . . . uniform air distribution ... noiseless ... draftless operation.

For quick and easy installation of PERFAIR units, separate mounting frames are available for surface and tile applications.

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CURTAIN WALLS



FOR THE NEW HOME OFFICE BUILDING EQUITABLE LIFE ASSURANCE SOCIETY **NEW YORK CITY**

Contractor: Turner Construction Co. Architects: Skidmore, Owings & Merrill

Here's another of America's outstanding buildings—the new Home Office of the Equitable Life Assurance Society of America. And like so many other distinctive buildings, it too features Curtain Walls engineered, fabricated and erected by General Bronze.

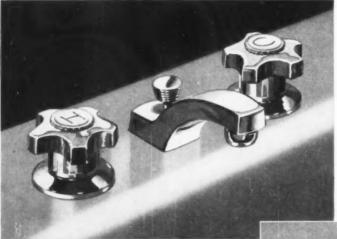
To give a pleasing contrast to the natural finish aluminum grid and panel units, the architects, Skidmore, Owings & Merrill, have used black glass spandrels below each of the fixed light windows as well as black finish louvers on all the mechanical equipment floors.

If you are planning a curtain wall building in either aluminum, bronze or stainless steel, we can help you in many ways. For detailed information on GB products-curtain wall systems, windows, revolving doors, architectural metalwork-give us a call or see our catalogs in Sweet's.

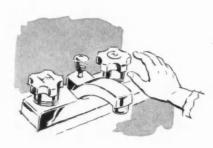


CORPORATION . GARDEN CITY, N.Y. SALES OFFICE: 108 PARK AVE., NEW YORK 17, N.Y.

PERMATITE DIVISION — Custom-built Windows, Curtain Walls, Architectural Metal Work and Revolving Doors. ALWINTITE DIVISION—Stock-size Aluminum Windows and Doors, BRACH MFG. CO. DIVISION - Radio, Television and Electronic Equipment. STEEL WELDMENTS, INC. DIVISION - Custom fabrication in Steel and Iron.



Galaxy series with brushed chrome finish. Lavatory fitting K-6965.



Constellation series with polished chrome finish. Lavatory fitting (below) K-7450.

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All Brass Fittings



as durable as they are distinctive



Interchangeable valve unit

When you specify Kohler fittings for Kohler plumbing fixtures, you insure first quality and harmony of design throughout the installation, with undivided manufacturing responsibility.

The only metal beneath the chromeplating of Kohler fittings is brass, of high copper content. Brass has superior wearing qualities, maximum resistance to corrosion. It takes and holds chrome-plating better than any other metal, requires less maintenance.

Kohler fittings respond easily, reliably, to finger pressure. Interchangeable valve units afford positive action, maintain water-flow at volume set. Their non-rotating action—pressing the seat washer against a stationary seat—eliminates the wearing action of the conventional screw-type valve.

Kohler fixtures deserve Kohler fittings.

KOHLER CO. Established 1873 KOHLER, WIS.

KOHLER OF KOHLER

Enameled Iron and Vitreous China Plumbing Fixtures • Brass Fittings Electric Plants • Air-cooled Engines • Precision Controls



San Angelo Central High School, San Angelo, Texas

Ulric Meisel photo

primary and secondary pumping with B&G® PUMPS keeps horsepower down

Architects: Caudill, Rowlett & Scott— Houston, Texas, Oklahoma City, Okla., Corning, N. Y. and Stamford, Conn.

Associate Architect: Max D. Lovett— San Angelo, Texas

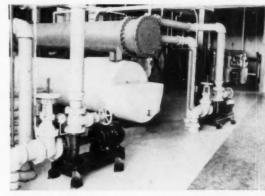
Engineer: J. W. Hall—Bryan, Texas Mechanical Contractor: R. M. Wells— Quanab. Texas

The twelve buildings of this campus-type high school are heated and cooled with water. The pumping equipment consists of six B&G Universals, twelve Series 1510-B pumps and eight Boosters.

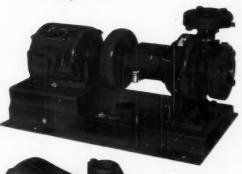
These pumps circulate single and dual coil units for heating and cooling and also the service water lines. Pump sizes range from 1/6 HP Boosters to 20 HP Universals.

To keep pumping horsepower at a minimum, a B&G primary and secondary pumping arrangement is employed, with the piping divided into three primary circuits. Each primary pump is sized to circulate the maximum demand for water through a single loop. The pump, therefore, need only be large enough to overcome the friction head in the primary piping circuit.

Secondary pumps in each building, and for each major zone in each building, handle water quantities out of these main circuits and overcome the balance of the head in the system.



Two B&G Pumps for circulating chilled water



Bag Boostes

BAG Universal Pump

B = O G



B&G Universal Pump for circulating heated water through primary circuit

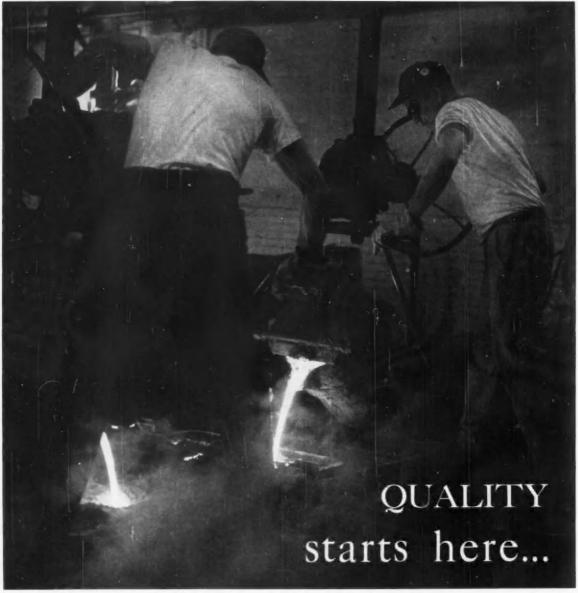


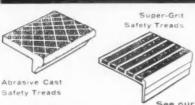
B&G Booster circulating one of the secondary circuits

BELL & GOSSETT

Dept. GA-32, Morton Grove, Illinois

Canadian Licensee: 5 A. Armstrong, Ltd., 1400 O'Connor Drive, Toronto 16, Ontario

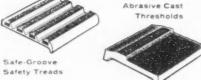




Pouring the molten metal for Wooster abrasive cast safety treads and thresholds is just one step in a manufacturing operation that is called upon to constantly meet a number of varying conditions.

The constant care necessary to insure quality materials depends upon craftsmen like the molders above - just one part of our team working to maintain this quality tradition.

See our new enlarged catalog in Sweets architectural file $\frac{13b}{Wo}$ or send for free copy



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Quietly beautiful. Beautifully quiet...

- Quietly beautiful—the only incombustible* glass fiber ceiling board with travertine texture.
- Beautifully quiet-85 NRC.
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- The ideal ceiling board for any suspended ceiling application where appearance and acoustical efficiency are important. . . offers uniformity without monotony.

FOR ADDITIONAL INFORMATION SEE SWEET'S FILE 11A/GU OR WRITE FOR 4-COLOR AIA BROCHURE TODAY.

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Thermal and acoustical glass fiber insulation for duct work, pipe, curtain walls, metal buildings.

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Underwriters
Laboratory
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Another First in Building Design created by

Reinforced CONCRETE



The Hartford Building, Western Department Headquarters of the Hartford Fire Insurance Company Group, Chicago, Illinois Architects and Engineers; Skidmore, Owings, and Merrill, Chicago, Illinois General Contractors: George A. Fuller Company, Chicago, Illinois

A unique example of reinforced concrete's greater design flexibility will be the new 20-story, \$20,000,000 Hartford Building now under construction in Chicago. Described as another first in office building design, this unusual reinforced concrete and glass structure will have curtain walls recessed 4 feet to provide canopies above each floor to shade office areas from the glare of sun and sky.

For nearly every type of building, reinforced concrete is the most creative, flex-

ible construction medium. Its "plastic-like" qualities let you mold and form structural designs to meet almost any requirement. Too, it is lower in first cost—lower in maintenance cost. And with all materials readily available from local sources, projects start on time and finish on schedule.

Before you design or build any type of structure, investigate this more flexible, economical, and timesaving method of construction.

Concrete Reinforcing Steel Institute

38 South Dearborn Street, Chicago, Illinois



BRADLEY WASHFOUNTAINS

AGAIN

IN AMERICA'S FINEST PLANTS





Designer-Engineer-Builder: The H. K. Ferguson Company, Inc., Cleveland



CUTLER-HAMMER, INC. Lincoln, III. ombing Contractor: J. F. Weiskopf & Son, Springfield, III.



CHARLES BRUNING COMPANY, INC. Engineer-Architect: A. Epstein & Sons, Inc., Chicago Plumbing Contractor: Marcus Weil & Sons, Chicago



TEXAS INSTRUMENTS INCORPORATED Architects: O'Neil Ford & Associates, San Antonio; Richard S. Colley, Corpus Christi; A. B. Swank Associates, Dallas Plumbing Contractor: Beard Plumbing Co., Dallas



NATIONAL BISCUIT COMPANY Fair Lawn, N. J.

Designer-Engineer: Nabisco
Engineering Department
Plumbing Centrector: Frank A. McBride
Co., Faterson, N. J.



KAISER ALUMINUM & CHEMICAL COMPANY, Revenswood, W. Va. er-Designer: Kaiser Engineers ion of Henry J. Kaiser Compan



SQUARE D COMPANY Architect: Grassold-Johnson & Associates, Designer: Brooks Stevens Associates,

Plumbing Contractor: P. J. Grunau Co., Milwaukee



1959

Each year for 25 years, Factory's editors have selected Ten Top New Plants. It is noteworthy that so great a majority of such Top Plants have Top Washing Facilities—Bradley

such Top Plants have Top Washing Facilities—Bradley Washfountains.

The 1959 selections include—Bucyrus-Erie plant, Richmond, Ind.; Charles Bruning, Mt. Prospect, Ill.; Cutler-Hammer, Lincoln, Ill.; Kaiser-Aluminum & Chemical Corp., Ravenswood, W.Va.; National Biscuit, Fair Lawn, N.J.; Square D, Glendale, Wis.; Texas Instruments, Dallas, Texas.

And among the 1958 Top Ten there were: Automatic Electric Co., Northlake, Ill.; Beckman-Helipot Corp., Newport Beach, Calif.; Chrysler Corp., Twinsburg, Ohio; Johnson & Johnson, North Brunswick, N.J.; Marquardt Aircraft Co., Ogden, Utah; The Martin Co., Orlando, Fla.; National Lock Co., Rockford, Ill.; Polaroid Corp., Waltham, Mass., all Bradley equipped.

Better Washing Facilities In Less Space

Employees like the ease of water control by means of the foot ring, eliminating need for faucets-they like the cleanliness

of the big self-rinsing bowl.

Economy of space, installation and maintenance costsmaximum in sanitation—have lead to the wide use of Bradley Washfountains in plants of every size and kind—25-man plants and those employing hundreds and thousands.

When considering new plants, extensions, or improvements, install Bradleys . . . Latest catalog mailed on request.

BRADLEY WASHFOUNTAIN CO. 2227 W. Michigan St., Milwaukee 1, Wis.

Aristocrat Manufacturing Co., Ltd. Toronto 9. Ont., Con.







St. Mark's Lutheran Church, Norwich, Conn. Architect: John MacL, Johansen. Authorized SPRAYED "LIMPET" ASBESTOS Applicator: E. B. Carley & Co., Inc.

As you can see above, the 1 1/8" coating of SPRAYED "LIMPET" ASBESTOS faithfully follows the contours of the vaulted nave . . . pre-cast, re-enforced concrete shells. But, there's more than flexibility to the credit of this sprayed-on-with-a-gun insulating material. It has a "U" factor of heat transmission of .17 BTU/ hr/ft2/°F. plus a sound absorption quality-in terms of noise reduction coefficient-amounting to .85. And, the high capillarity of the asbestos fibers provides condensation control and prevents dripping.

A multi-jet, gun-type applicator combines asbestos fibers and an inorganic binder with water during the spraying-on. In only one operation, you have the desired thickness. At application's end, you have a seamless, crackless blanket... pale beige in color...
that accurately reproduces the architectural design.
All this, and less structural stress, too! SPRAYED
"LIMPET" ASBESTOS only weighs one pound per square foot.

Find out why more and more modern structures are turning to this marvelous material for thermal insulation, condensation control, acoustical treatment, and fireproofing.

Just write to us today for more information.

Insulates steel, aluminum, and concrete . For floors, ducts, beams, and all structural elements . No forms or shoring required . Goes on in all kinds of weather-as long as temperature at point of application is above 40°F. • Minimum clean-up • Takes paint beautifully • Adheres with strength of 100 lbs. per sq. ft.

SPRAYED "LIMPET" **ASBESTOS**

A 100% Asbestos blanket insulates a strikingly modern house of worship!



KEASBEY & MATTISON

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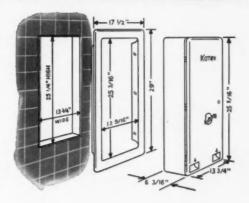
The ultimate in built-in convenience...

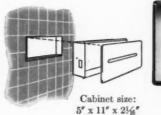
RECESSED VENDORS for KOTEX feminine napkins

To keep pace with the latest architectural designs, Kimberly-Clark has styled a brand new recessed dispenser for Kotex feminine napkins for rest room use in schools, offices, stores; industrial and public buildings. This unobtrusive, built-in vendor holds 63 individually boxed napkins. 33 vend from a single loading, 30 are held in storage.

These streamlined, sturdy, pilfer-proof vendors add a much appreciated service to any public building. They are available with either a five-cent or ten-cent coin mechanism.

Available in durable white enamel, satin chrome, gleaming polished chrome and stainless steel. Matching frame for recessed installation. (Other vendors that can be surface mounted are also available.)







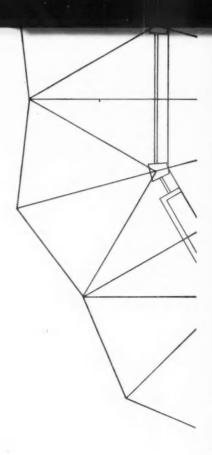
RECESSED DISPENSERS FOR KLEENEX TISSUES

Holds full box of Kleenex 200's. Dispenses one tissue at a time. Mirror-chrome finish. Holes in back and side make it easy to fasten to studding.

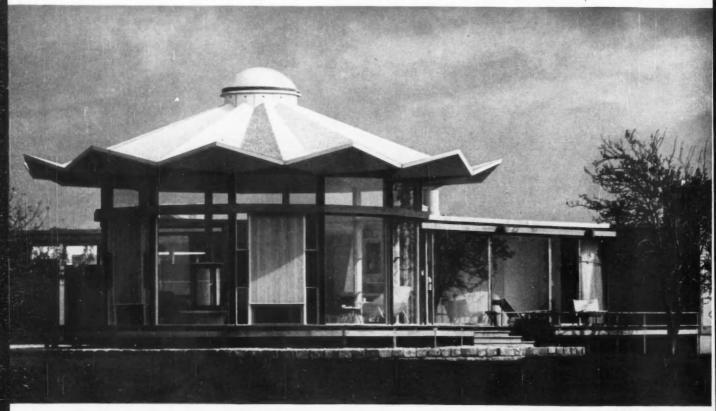
For further details on how these attractive new dispensers can fit into your plans, see Sweet's 1959 Architectural File Cat., Section 26e/Ki. or write to Kimberly-Clark Corp., Dept. AR-10, Neenah, Wisconsin.

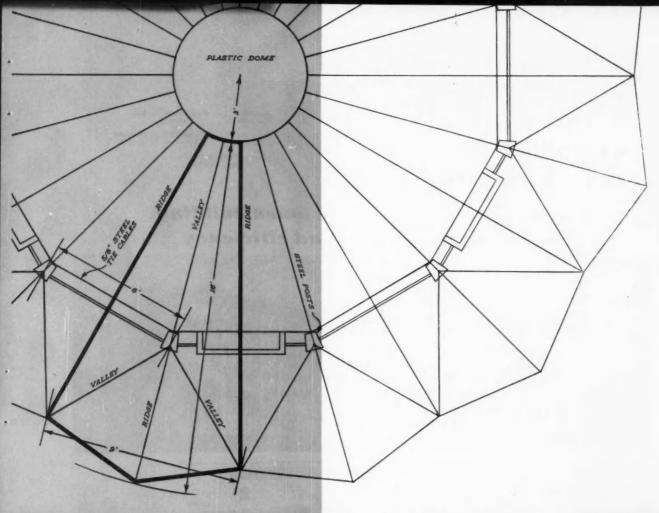
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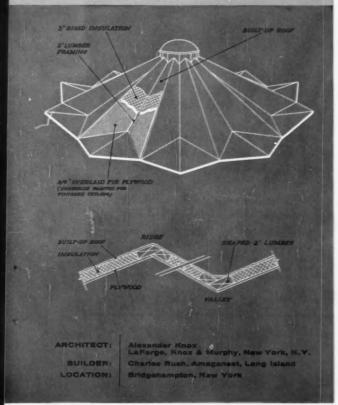
KIMBERLY-CLARK W CORPORATION NEENAH, WISCONSIN



new approaches to structural design with fir plywood







THE PLEATED ROOF that crowns this pavilion-like living room is a prime example of the bold and imaginative forms derived from the basic fir plywood folded plate principal. Shape rather than mass is the key to its strength. The distinctive sawtooth configuration capitalizes on fir plywood's high diaphragm strength to create, in effect, a series of rigid, lightweight "V" beams. Intermediate posts, trusses and bulky framing are eliminated.

In this sophisticated circular design, the plywood folded plates provide a dome, spanning 26 feet, wall to wall. No central support is required. Where desired, far greater spans could be achieved utilizing the same basic system.

The roof itself is composed of 12 basic "boat-shaped" fir plywood components which were crane-lifted into position atop the steel supporting columns. Each component, in turn, is made of four triangular pieces of 34" overlaid fir plywood, perimeter framed and interconnected with shaped two-inch lumber. Alternate projecting and recessed stiffeners along the ridges connect each component with its neighbors. Each component combines roof deck, insulation and finish ceiling.

For basic design data or other information, write (USA only) Douglas Fir Plywood Association, Tacoma 2, Washington.



CHICAGO SUN-TIMES

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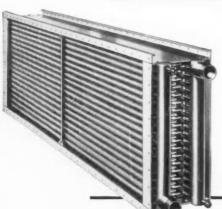
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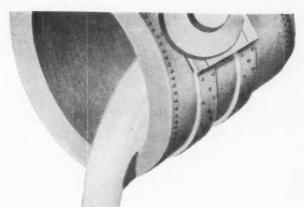
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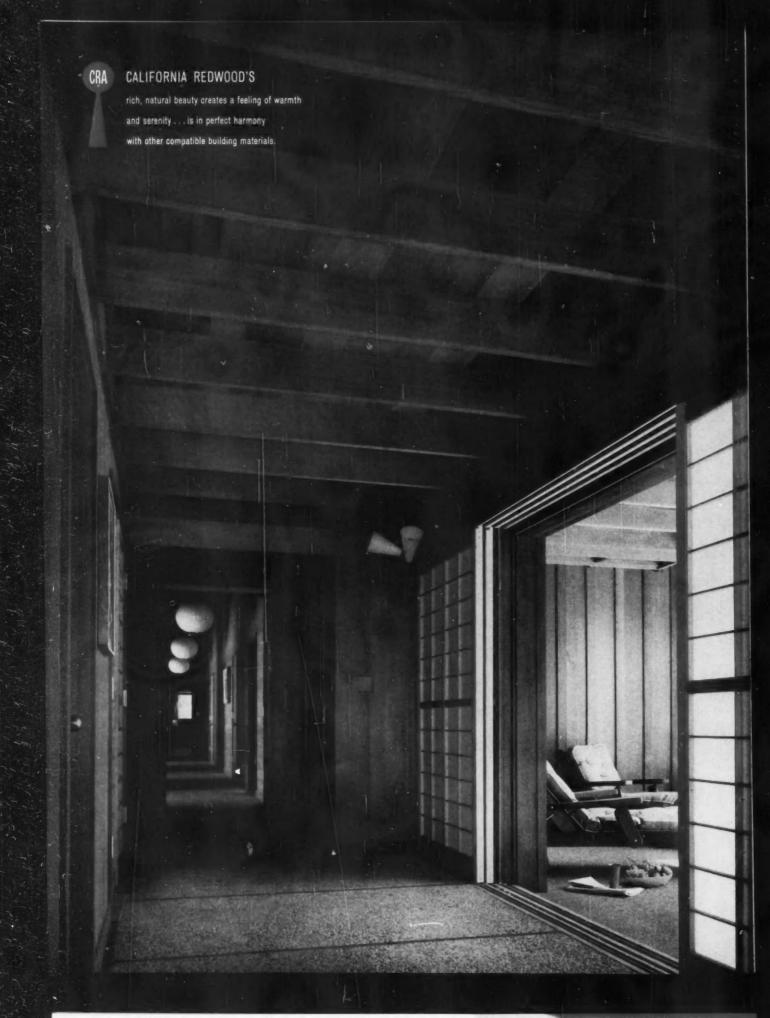
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The redwood carport is in perfect harmony with nearby foliage and planting...helps to relate house and garden. Incidently, the use of aluminum, stainless or hot-dipped nails is recommended for all exterior applications of redwood.





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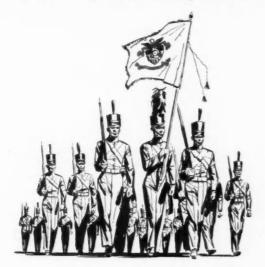
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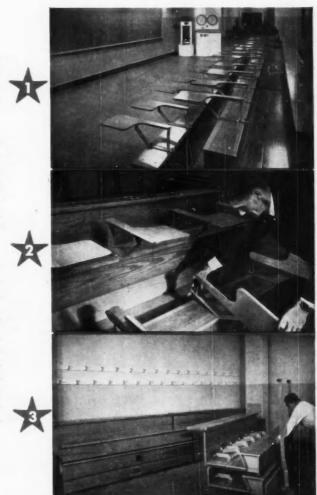
How Movable Seats Solve Training Class Seating Problems

Situation: Industry has a problem seating men for on-the-job training. If they schedule the class at the site of the machine, there's no place to sit or write notes and it's difficult to see. If they set the class up elsewhere, a machine has to be hauled to the class.

Walter Dorwin Teague Associates created the idea that produces an answer. At West Point Military Academy, classroom seating was needed for chalk-board sessions. That same floor space was also needed for Concrete Testing Lab. experiments. Teague's solution: use movable Hussey Closed Deck Roll-Out gym seats with detachable tablet arms, as illustrated. This way, one area serves both purposes.

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Illustrated, includes specifications for recessed unit and continuous cloth towel cabinets. Write-to Linen Supply Association on your letterhead.



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INTEGRAL DOOR HINGE BRACKET

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Toilet partition pilasters can now have true 'flat-slab' architectural appearance, a clean line uninterrupted by bolts that protrude, or hinge bracket parts that extend over the pilaster surface. Sanymetal's new INTEGRAL HINGE BRACKET is part of the pilaster, clean-lined and functional, bringing more beauty to compartment design, the

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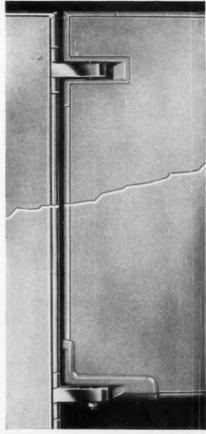
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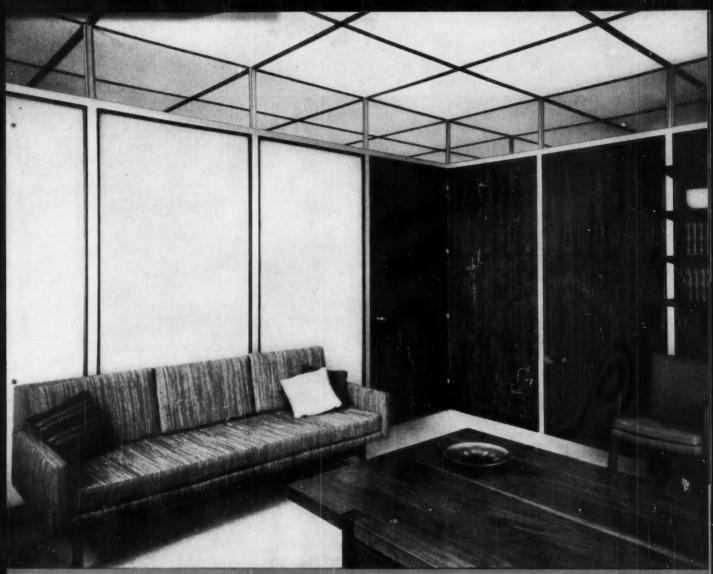






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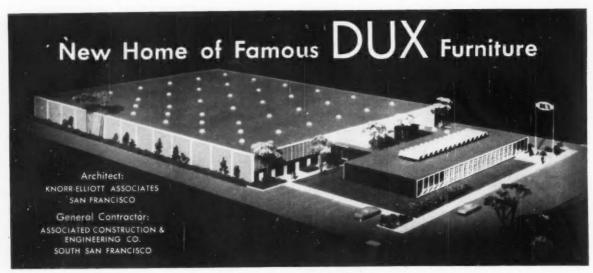
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Venus Pen & Pencil Corp. now produces better erasers—and saves \$10,615 a year besides—by using a Chrysler Liquid Chiller to supply cool water for the rolls used in calendering the rubber.

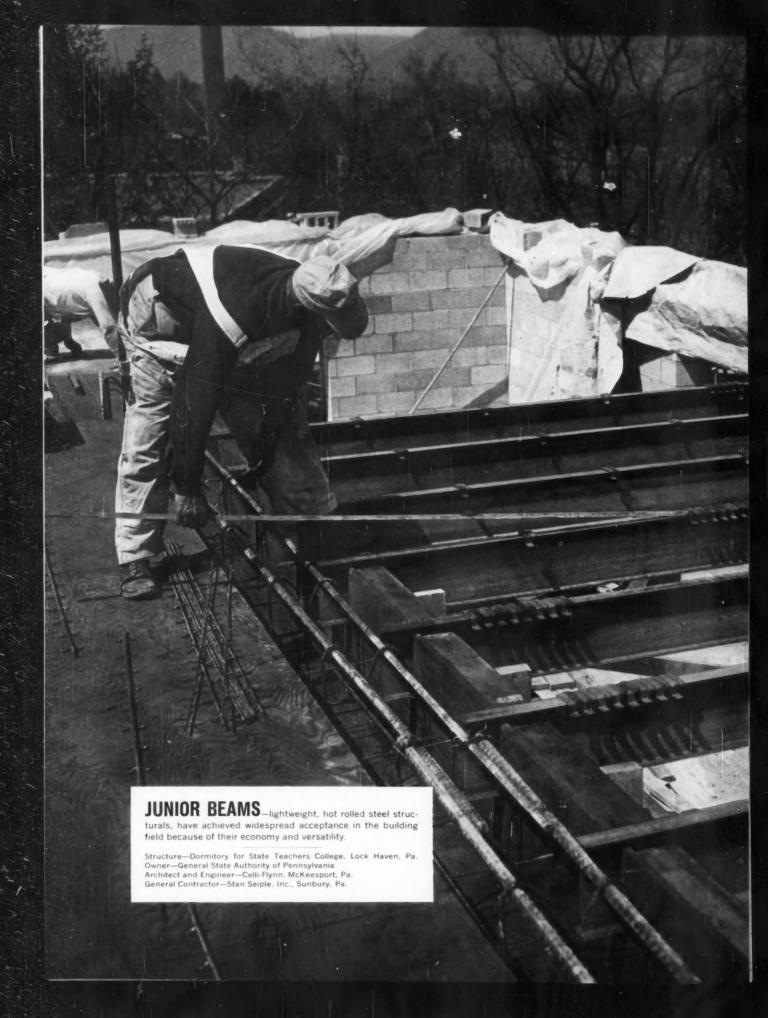
The rolls must be kept from overheating to prevent discoloration or damage to the rubber. Venus Pen & Pencil had been using city water in its Lewisburg, Tenn., rubber plant. Water costs ran nearly a penny per pound of processed rubber. And, since water temperature rose too high in summer, 10% of its production was wasted.

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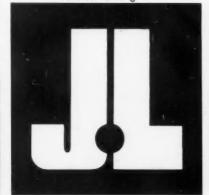
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All intermediate floor and roof members in the structure are J&L Junior Beams.





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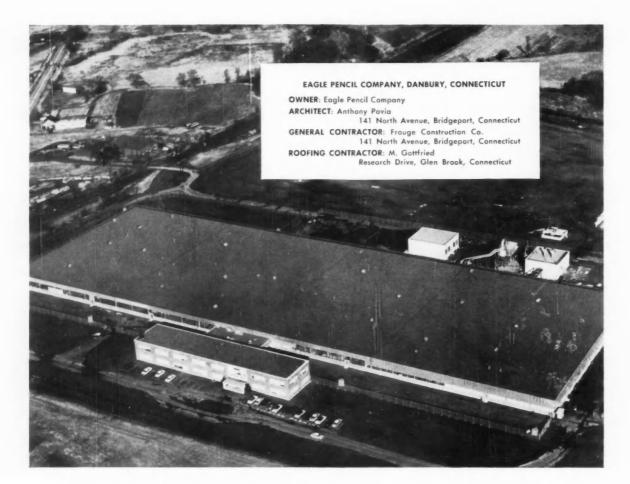
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Recent Work of MARCEL BREUER

There is evidence of maturity in these latest examples of Breuer's work. There is proof also of the continuing validity of early concepts, steadfastly held since the '20's. These buildings all show a preoccupation with masonry, concrete and the contrast of surfaces; but the architect will explain that he has *always* been interested in stone and the interplay of masonry textures with others—that he continues to regard stone as a material that looks good, ages gracefully, and requires little maintenance.

If one asks if this is a turning away from an earlier concern with the delicacy of metal and glass, he will point out how metal and glass is used in these examples; and will protest—with perfect justification—that his 1928 tubular chair appears completely at home in any of these later, stonewalled, flagstone-floored buildings.

Regarding texture, pattern, and color, Breuer says, "The variations of a natural texture (stone, wood, rush, etc.) next to a flat color or smooth surface give a certain physical sense to form and space, both exterior and interior. We seem to like this; we like the touch of it in somewhat the same simple way we like the warmth of a fire.

"The atmospheric, emotional radiation of color gives something else. So we do not use one thing to the exclusion of everything else. An architectural composition needs all elements—materials, patterns, textures, colors—it needs the freedom to use them and the strict discipline to use them in a lasting way. After all, we don't change buildings in the same way we change neckties."

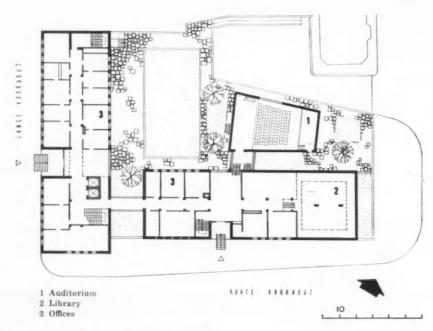
ARCHITECTURAL RECORD

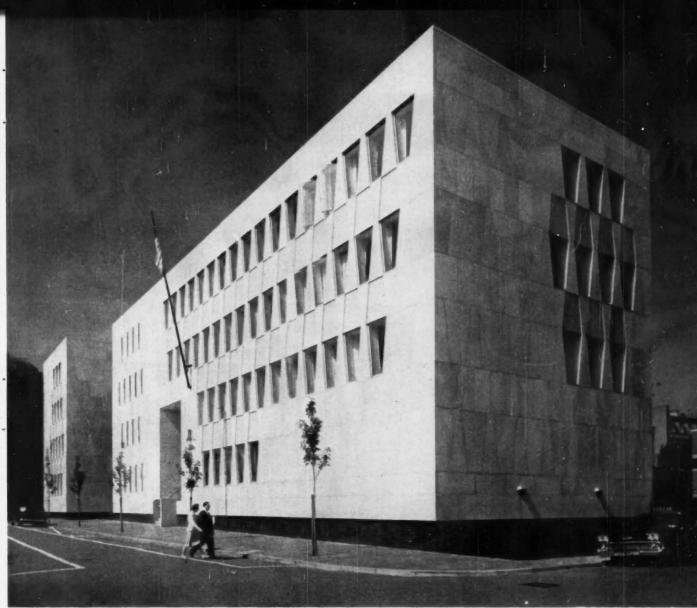
JANUARY 1960



Quotations through this article come either from direct conversation with Marcel Breuer or from his book, Sun and Shadow, a philosophic and pictorial summing-up, published in 1955 by Dodd, Mead & Co.

— J. S. H.





All photos by Jan Versnel

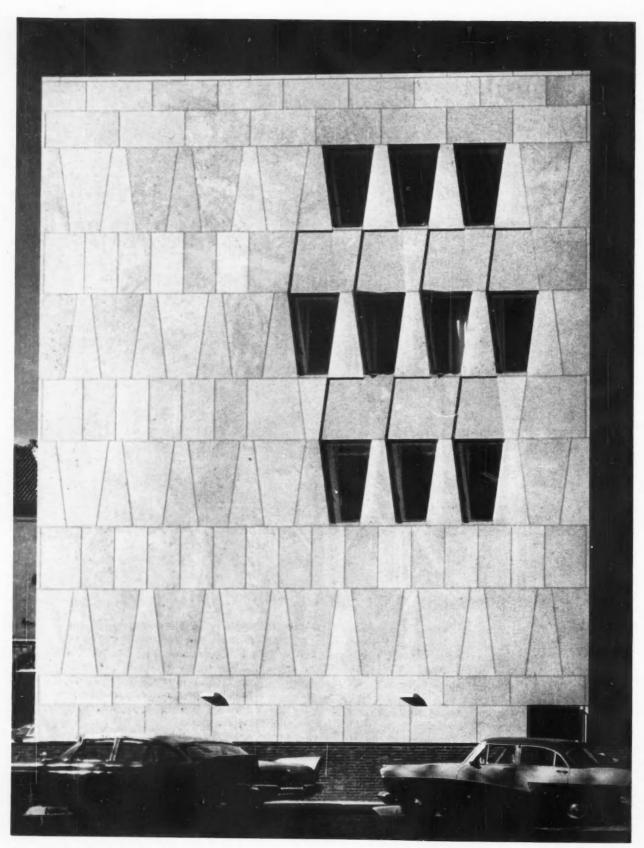
Recent Work-Breuer

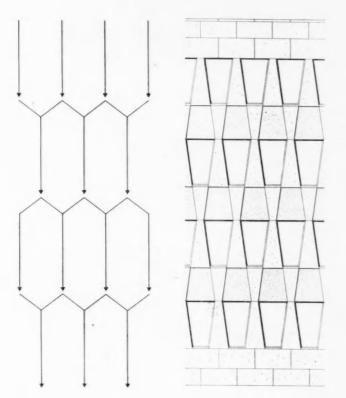
U. S. EMBASSY, THE HAGUE, HOLLAND

In designing the recently completed United States embassy in The Netherlands, the site, the city, and history weighed heavily in all decisions, for tradition is not to be taken lightly in The Hague, traditional seat of Dutch government. The site faces a widening in the street (Lange Voorhout), and is surrounded by 17th and 18th century buildings, small in scale and built of masonry. Thus, the architect said, "the scale of the new building is important, as are its dignity and appropriateness. It must make a proper presence. A steel and glass building would strike a jarring, aggressive note—masonry would seem to be much more at home in this situation."

To cut down the scale of the new building—necessarily greater in bulk than any nearby—its long elevation was divided into two elements joined by a crystalline link, and the entrances were designed as penetrations through the solidity of the masonry, which was divided into five masses to reduce the apparent size of the whole.

Slocum & Fuller, Mechanical, Electrical Engineers; Farkas & Barron, Structural Engineers; Bakker & Dicke, Supervising Engineers; Ingenieursbureu voor Bouwnijverheid N. V., General Contractors.



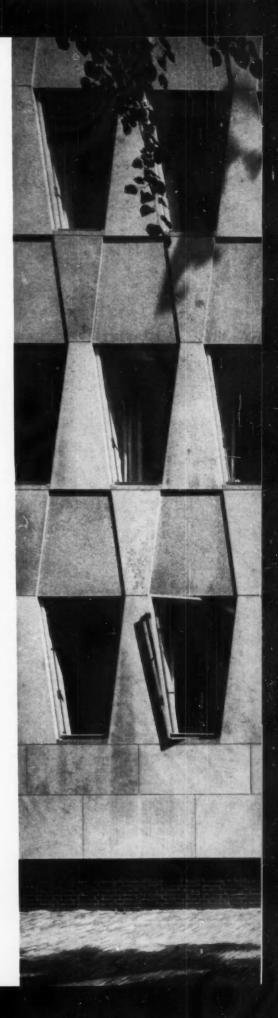


$Recent\ Work-Breuer$

U. S. EMBASSY, THE HAGUE

The goal was to express the masonry bearing wall as a single entity—to maintain both its visual and structural integrity as a unit, and avoid the usual rows of windows that jab holes in the wall and transform it structurally into a series of load-bearing piers. Thus, the 5-ft module was staggered floor to floor, and the openings were chamfered to ease the flow of diagonal stress. The result looks good, causes the wall to act as a unit, and makes it possible to group openings in unusual patterns, as at left. The facing is striated limestone (with striations variously horizontal, vertical, or diagonal); the upper halves of the coffin-shaped openings are faced with highly-polished gray granite







Recent Work-Breuer

U. S. EMBASSY, THE HAGUE

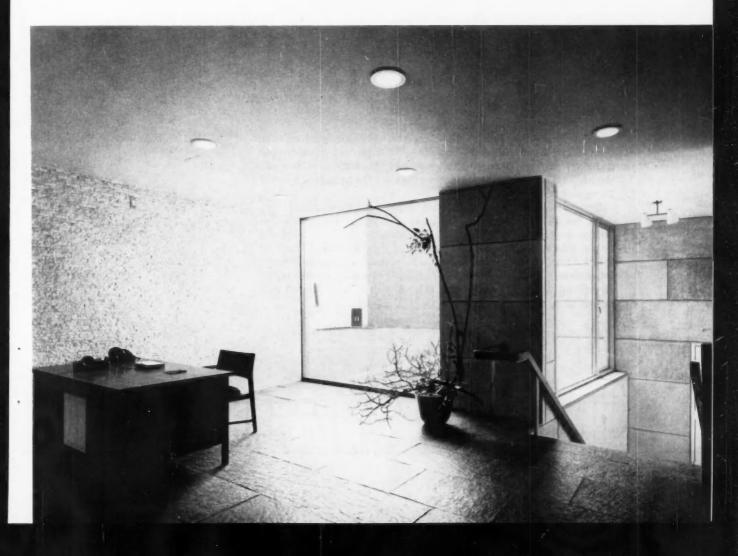
Concerning space and detail, architect Breuer has this to say: "the two most important developments that underlie our new architecture have at their base the concept of flow, or motion: the flow of space that leads to spatial continuity; and the flow of structural force that leads to continuous structure.

"Space may be given certain qualities by its defining elements—depending upon whether they are wood, glass, metal, brick, of this color or that texture. The quality of the defining elements is, in turn, dictated by practical needs.

"We subordinate everything to the greater unity of our new kind of space: the house to the street, the street to the square, the square to the city-space.

"Detail is thus subordinated to the sense of continuity of the space where it occurs and its relationship to the space of the entire building and its setting. Spaces are thus calmer, less busy, much more relaxing. Detail is not independently aggressive; is without its own esthetic demands."



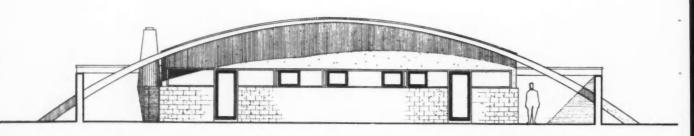




The design of this unusual summer and week-end house is based on the twin ideas of informal outdoor living and easy maintenance. The entire structure will consist of a reinforced concrete vault set within a walled compound that will form an outdoor room, relatively small in area for simple upkeep. The house will be one of a group of 10 or 12, each on about an acre, and each designed by a different architect. The 6-ft-high wall is calculated to insure privacy from neighbors and at the same time provide the high views of the mountainscape that are the principal natural attraction of the region.

Since the occupants will probably use nearby clubs and restaurants for most meals, the kitchen and utility facilities will be informal in character and not as complete as in a year-around house. The vault will rise 13 ft; will vary in thickness from 12 to 6 in.; and will be poured against a form made of planks of wood chips embedded in concrete. The plank will be spray-painted white as ceiling; the upper surface of the vault will be insulated and protected by roll roofing.



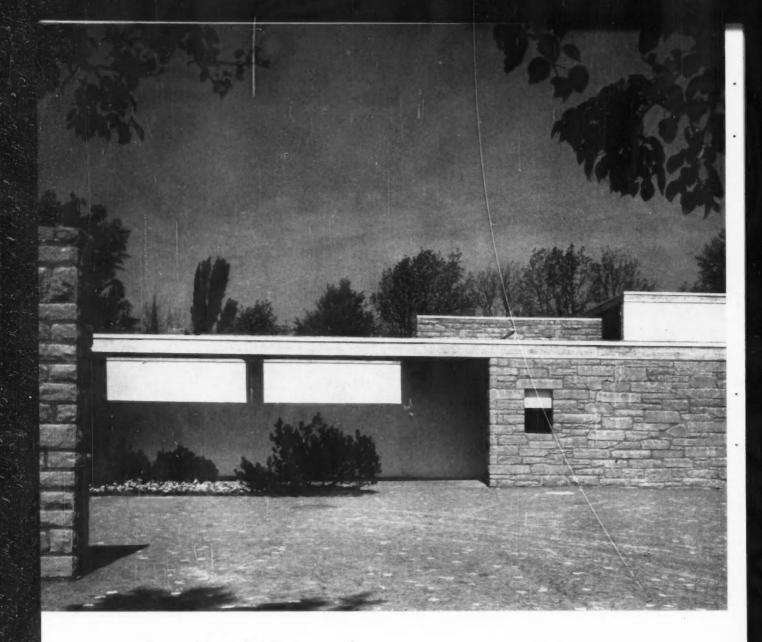




Rendering by Pierre Lutz

Recent Work—Breuer
VACATION HOUSE, ASPEN, COLORADO





Recent Work—Breuer

STAEHELIN HOUSE, FELDMEILEN, SWITZERLAND

In this house much is made of the contrapuntal interplay of fieldstone and smooth stucco (or plaster) surfaces. This is true both inside and out, with these materials consistently expressed everywhere. The stone is native, gray and bluish in color; the stucco (or plaster) is painted white for contrast. Both materials are facings for the concrete structure—a conventional bearing wall, slab, and interior column system. Free-standing columns are natural concrete, bush-hammered for textural interest.

The plan is informal in character and actually a mature, considered expression of Breuer's earlier binuclear concept. In this case—which one might describe as a "double take"—the elements revolve about a series of courtyards and terraces; and the children's zone is under the direct control of servants, with the parents' quarters upstairs. The house is set within several acres of gently sloping, sparsely wooded meadowland on the shore of the lake. Entrance and service paving is traditional cobblestone in radial pattern; other terraces and floors (except in bedrooms and baths) are flagstone.

Herbert Beckhard, Associate Architect; Eberhard Eidenbenz, Supervising Architect.

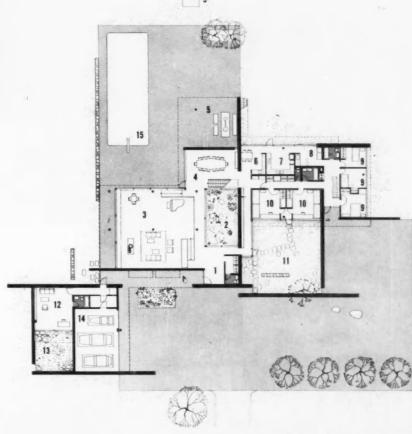


All photos by Bernhard Moosbrugger

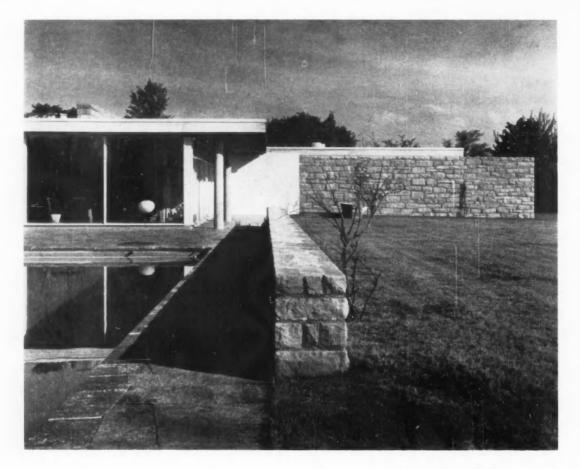
- 1 Entry 2 Garden Court 3 Living Room

- 4 Dining Room 5 Cocktail Terrace
- 6 Breakfast Room
- 7 Kitchen
- Laundry
- 9 Servants' Quarters
- 10 Children
- 11 Outdoor Play Area 12 Studio 13 Studio Garden
- 14 Garage
- 15 Pool
- S Sculpture
- 16 Study 17 Master Bedroom
- 18 Dressing Room 19 Guest Room
- 20, 21 Roof Deck













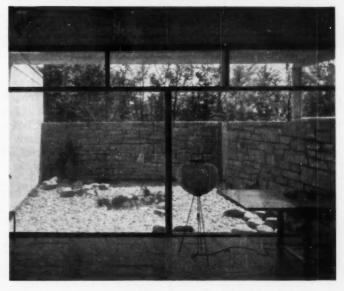
Recent Work—Breuer STAEHELIN HOUSE

Of the house in its setting, Breuer has this to say, "Nature and architecture are not enemies—they must live together (as man and wife) but are distinctly different (as man and wife). I see no reason why buildings should imitate natural, organic or growing forms; or why one should adapt natural forms to the crystallic, geometric forms of architecture, as in the Rococo period.

"When the geometry of the house is projected out into the landscape—through retaining walls, terraces, etc.—it must be treated as a distinctly manmade thing. It is definitely something built as a backdrop to the landscape—and the landscape is a backdrop to it."









ARCHITECTURAL RECORD January 1960



Recent Work-Breuer

LAAFF HOUSE, ANDOVER, MASSACHUSETTS

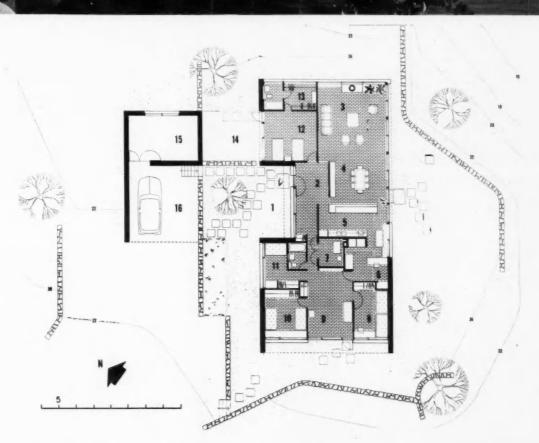
In this Yankee house with a Mediterranean twist, the spaces are arranged in classic binuclear fashion. Grownups are separated from children, but connected by a hall; kitchen-laundry-sewing areas serve as buffer where zones meet. The entrance court-yard separates service elements from the main house mass. In both elevation and plan, the transparency of glass and the solidity of stone are decisively contrasted.

Speaking of contrast, Breuer says, "The real impact of any work is the extent to which it unifies contrasting notions—opposite points of view. I mean unifies and not compromises.

"Take an example: transparency through the use of glass is definitely one of our objectives, but transparency needs also solidity. Not for esthetic reasons alone, but because the total glass wall leaves out such considerations as privacy, reflections, transition from disorder to order, furnishings, a background for you, for people. Transparency becomes more crystalline next to solidity—and solidity makes it work."

Dan Kiley, Landscape Architect; Fichera Construction Co., General Contractor.





- 1 Entry Court
- 2 Entry
- 3 Living Room
- 4 Dining
- 5 Kitchen 6 Laundry—Sewing 7 Heater
- 8 Children

- 9 Playroom 10 Child's Room 11 Child's Room 12 Master Bedroom
- 13 Dressing Room 14 Pool 15 Storage—Shop
- 16 Carport





Recent Work—Breuer LAAFF HOUSE

The photos on this page point up particularly the interesting textural interplay between natural fieldstone and whitewashed fieldstone that is one of the leading aspects of this exterior.

Regarding the use of stone, architect Breuer says, "When stone is used in a wall, it is no longer some sort of rock formation, but a clear-cut slab—made of stone for the reason that stone is a good and durable and texturally pleasant material.

"Even when a wall is free in shape—so free you might be tempted to call it organic—it is still made clear, crystal clear, that this is a wall built by a mason, and not a grotto or part of a romantic rock garden."





HOUSES

A THREE-PAVILION COUNTRY HOUSE

OWNERS: Mr. and Mrs. John A. Orb

LOCATION: Barrington, Illinois

ARCHITECT: Edward D. Dart

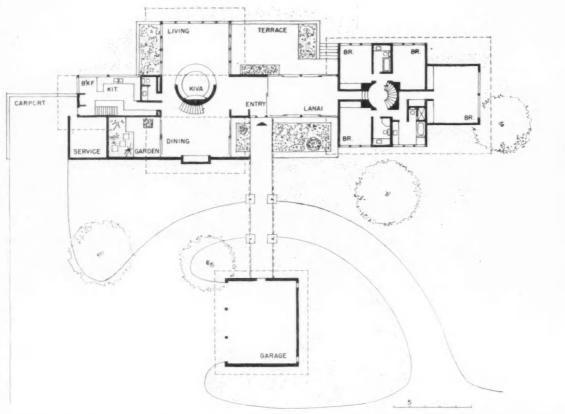
ENGINEER: Donald Robinson

CONTRACTOR: Rieke Construction Co.

This large country house gains a high degree of privacy, zoning of activities, and noise control by separating functions into three distinct pavilions or "houses." Each unit is emphasized by a pitched roof, and all are linked by flat-roofed walks or glassed-in loggias. The site comprises twenty acres of rolling, wooded land.

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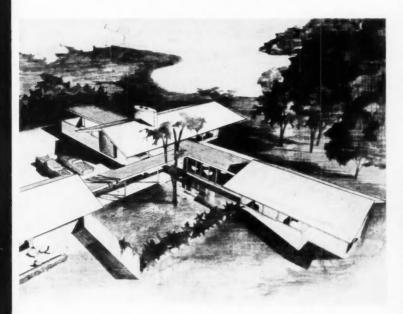




Orb House

The design of the house, while comfortably relaxed overall, has a refreshing crisp simplicity in its detailing. On the exterior, this neatness underscores interest in the massing of the three units (see sketch below).

The central pavilion, devoted to livingdining, is treated in an open manner to heighten the spaciousness. High ceilings follow the roof lines. Living and dining areas are separated by the fireplace, over which is bridged an open study balcony. The living area features a "conversation pit," dubbed here with the more exotic name of "kiva." A flat-roofed service wing flanks this unit. A full basement has storage, maids' rooms.



The bedroom pavilion is linked to the living unit by a glassed-in lanai. The front entry is separated from the lanai by a screen of carved Japanese panels. The basement below this unit contains a large children's playroom, which (due to the slope of the land) has outside access at ground level. From the inside, it is reached by a circular stair. The plot, as developed, substitutes a circular drive for the walled-in entrance court, and uses the covered walk as a porte-cochère.

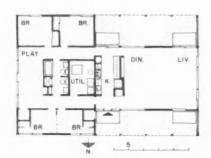
The frame of the house is steel, with concrete foundations. The exteriors are surfaced with painted brick, vertical redwood siding, wood shingle roofs. Interiors are plaster, wood paneling. Heating-cooling has two zones, two units.





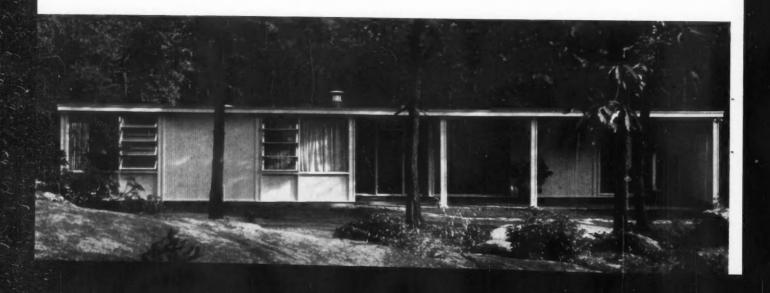


Alex Von Steiger for Namuth Studio photos, except as noted





Licanti



ORDERLY PLANNING FOR LOW COST HOUSE

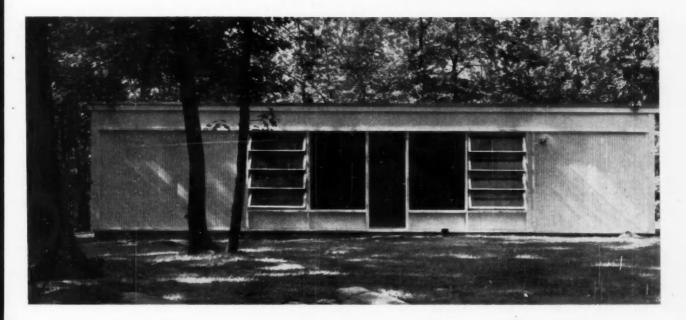
OWNER: John Martinez

LOCATION: Pound Ridge, New York

ARCHITECTS: Peter Blake & Julian Neski

An orderly neatness of planning and construction highlights this small, but spacious, four-bedroom house. The house was developed on a module of about 8 ft, determined by the width of a standard, aluminum-framed sliding glass door. The regular post-



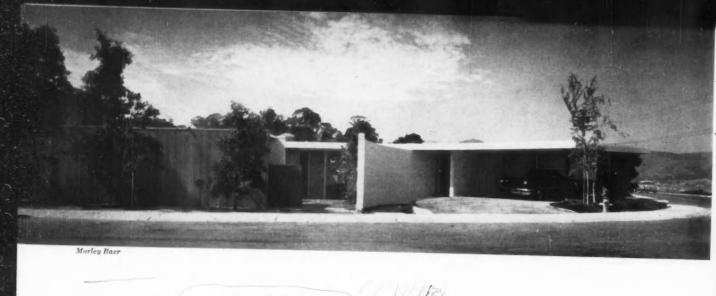


and-beam frame follows the module, and is set on a concrete slab, roofed with 2-by-3-in. planks. Standard sheet materials are used for all surfaces: plywood, plasterboard, built-up roofing, vinyl tile floors.

The plan centers on a mechanical core containing kitchen, utility room and two baths. Location of the core separates the two living areas—the living-dining room, and a play or family room. Linking halls permit the areas to be used separately or together for entertaining. Cost of the house was about \$28,000, or \$12 per sq ft.

The textured plywood exterior panels were first left natural (photo left center), but later painted white to provide more unity for so crisp a structure.













HOUSE MAKES OASIS OF TINY PLOT

OWNER-ARCHITECT: George Goddard

LOCATION: Belvedere, California

CONTRACTOR: Stewart Dinwiddie Company

LANDSCAPE DESIGNER: Janet McDonell

This ingenious house provides all the amenities of a big country house, for a family with five children, on an extremely limited waterfront site. A separate bedroom is provided for each child, with adjoining indoor and outdoor play areas which are easily super-





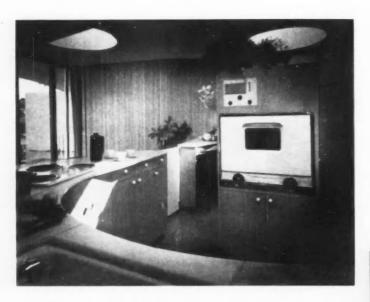


vised. At the opposite end of the house is a quiet, private suite of bedroom and study for the parents. Projecting fin walls on the water side of the house add further seclusion to the bedroom wings on a side left open to the view.

Privacy from the street and neighbors is gained by curving the plan of the house to the view, and curving carport and garden walls on the opposite side to the street; the spaces between are treated as play and garden courts.

An unusual sliding gymnasium-type ash partition is used to close off either side of the dining area, or to open up pass-throughs at the kitchen sink and bar sink (see photos next page). Thus a number of space combinations can be made at will.





Goddard House

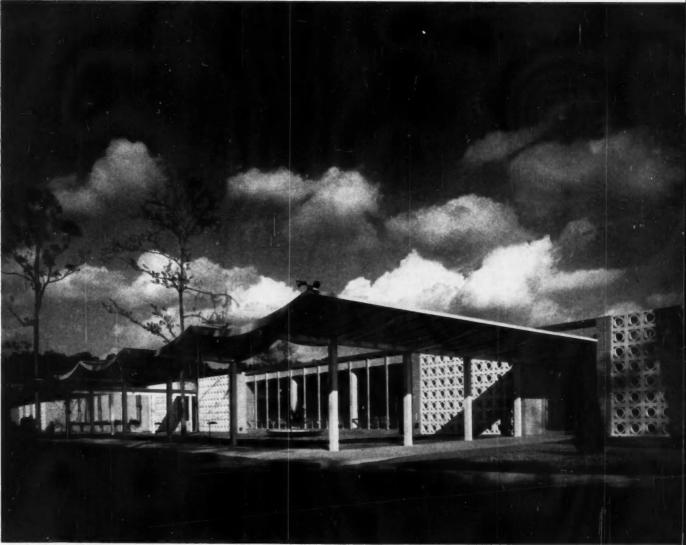
The extreme flexibility of the kitchen-dining area partitions is shown clearly in these photographs. At top, the area is entirely screened-off from the adjoining living and play rooms. Below, the wall by the play room is shown partially open. At right, the wall is opened by the bar sink to form a serving counter or pass-through.

The house has concrete-block and wood-frame bearing walls, with steel frame and columns at the kitchen-dining area for sliding partitions. The roof is wood joist with built-up tar and gravel surface, acoustical plaster ceilings. Floor slabs are concrete with a colored topping. Wall finishes are painted concrete block, redwood, natural ash





REHABILITATION CENTERS



F. Wilbur Seiders

1. Texas Institute for Rehabilitation and Research

LOCATION: Houston, Texas
ARCHITECTS: Wilson, Morris, Crain and Anderson
STRUCTURAL ENGINEER: Walter P. Moore
CONSULTING ENGINEERS: Dale S. Cooper and Associates
CONTRACTOR: Knutson Construction Company

In recent years government financial aid has encouraged the construction of rehabilitation centers for the survivors of catastrophic disease. These people, rendered tragic and desperate by their disabilities, through comprehensive treatment and training can learn to enjoy their lives, take care of themselves, and play their role in society. The Texas Institute for Rehabilitation and Research is a representative example of the new centers. A pilot project to demonstrate the value of a comprehensive medical program, it is a non-profit, charitable, scientific and educational enterprise. Physical medicine and physical therapy are the essentials of any complete rehabilitation service. This 54-bed unit for in-patients and out-patients with multiple disabilities of severe degree, provides intensive integrated services in the four basic areas of rehabilitation: medical, psychological, social and vocational. It also provides research and teaching facilities.

Total cost of the center was approximately \$1,350,000. \$676,000 of this came from Hill-Burton funds and the balance from local philanthropy. Hill-Burton, known officially as the Hospital Survey and Construction Program, provides Federal funds to match state and local tax funds or private contributions in the construction of both public and voluntary non-profit hospitals. Several years ago Hill-Burton was extended to include non-profit rehabilitation facilities for the disabled, and this Texas treatment center is among the first buildings completed under the extended program.

The site is a 4½-acre area located in Houston's Texas Medical Center. Rehabilitation units are best located in medical centers for several major reasons:

1. the many kinds of specialists required in the early stages of rehabilitation are available; 2. training programs exist or can be planned to relieve shortages of personnel; 3. specialists' assistance in the development of treatment techniques can be readily obtained; 4. rehabilitation can be begun as early as possible in conjunction with treatment provided patient in other parts of the center; 5. duplication of personnel and equipment is avoided.

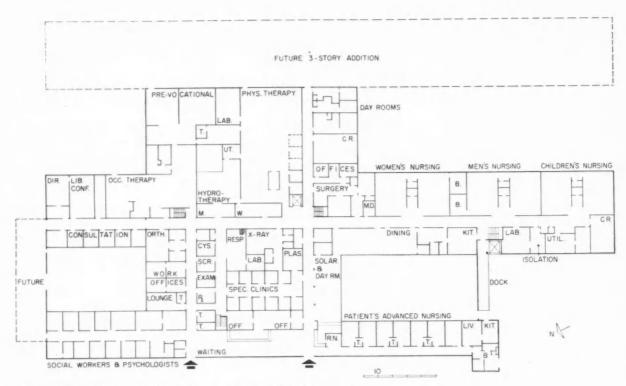
The building is of concrete frame construction with a suspended concrete floor slab and pre-cast concrete joist roof framing. Interior walls are 4-in. brick, exterior walls are brick and stucco. Windows and doors are aluminum frame. Because of the great physical exertion involved in rehabilitation it has been recommended that every rehabilitation building be air conditioned. This one is provided with both summer and winter air conditioning.

The architects state that the building was modularly coordinated and that drafting and specification time was greatly reduced thereby. They maintained a low hospital budget with a construction cost of about \$16.00 per sq ft which included much of the built-in cabinet work.

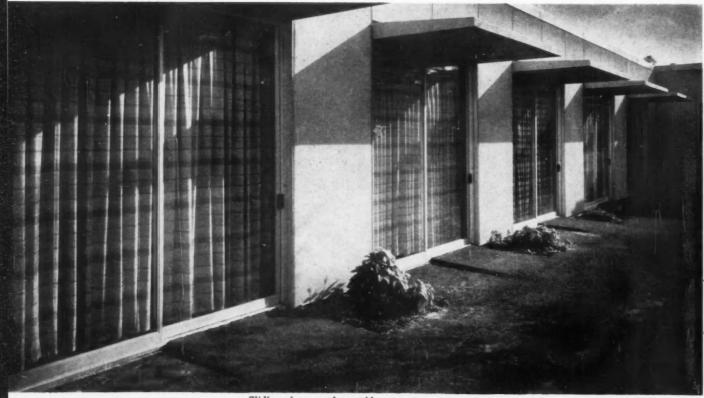


Most patients are paraplegics, quadriplegics or individuals with pulmonary or cardiovascular insufficiency. Non-functional, dependent, as a group they require every available service. A large open physical therapy room is recommended, not only for economy and ease of operation but for its value to patient morale. The patient takes comfort and encouragement in watching the constructive effort and improving skills of others. Note use of mezzanine for observation by professional staff





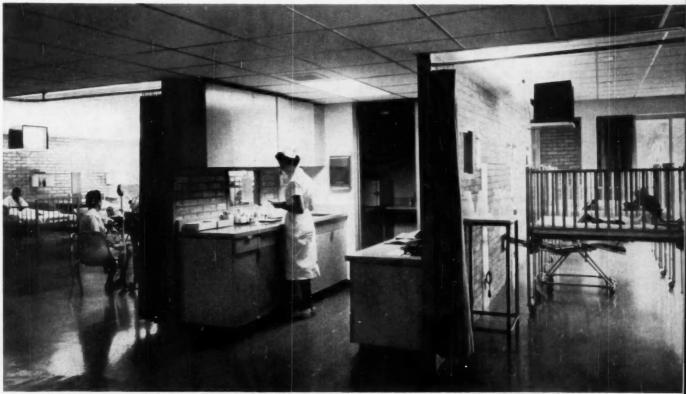
Plan provides generous area for social workers and psychologists. In rehabilitation centers psychologists test, evaluate and counsel patients. They also counsel the staff about the reactions of the patients to their disabilities. Medical social workers are a link with the patient's family and community



Sliding glass panels provide easy access to outdoors. Note gentle ramps for wheel chairs



A playful fountain helps avoid a depressing institutional character



A nurse's station is located in the center of each nursing unit. Here it subdivides the children's nursing unit

2. Carolyn Rose Strauss Rehabilitation Center

OWNER:

Ouachita Parish Society for Crippled Children and Adults
LOCATION: Monroe, Louisiana

ARCHITECTS:

Curtis and Davis, and Associated Architects and Engineers
CONSULTING MECHANICAL AND ELECTRICAL ENGINEERS:

deLaureal and Moses

CONTRACTOR: F. C. Eason Construction Company

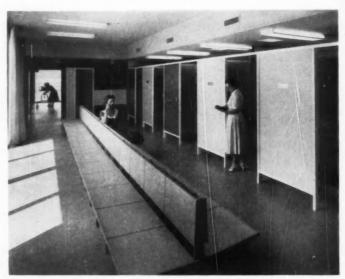
In contrast to the preceding rehabilitation center, this one is very small in scope. It is restricted to children all of whom are ambulatory or wheel chair patients, and handles approximately fifteen of them per day. There are no in-patients. On two days each month general clinics are held and on these days 60 to 130 children accompanied by parents are accommodated. The center is in a small community and serves a large surrounding area in Northern Louisiana.

The waiting area could not economically be made large enough to take care of the twice monthly overflow crowds so a waiting patio and an outdoor canopied area have been provided. The patio admits sunlight to the waiting area. Built-in seating imposes an order on the crowds and conserves space. The examination and treatment areas are arranged in the sequence the patient travels and establish an orderly flow of traffic on clinic days. Office locations have been planned to help control and direct patients.

Three exterior walls face streets and are made of brick with no openings for the sake of privacy. Skylights are extensively used in the smaller rooms. The therapy rooms have been placed in the rear of the structure and overlook a fenced-in play yard which in the future will have a swimming pool. The rear wall is glass from floor to ceiling with doors providing access from the therapy rooms to the yard where other forms of therapy take place.

Certain rules for correct detailing in rehabilitation centers were followed. Heavy duty pre-polished vinyl flooring was used for its slip resistant quality and for its resistance to permanent indentation resulting from concentrated loads of equipment. Doors are oversized and furnished with special hardware, toilets are equipped with special grips and other devices, and drinking fountains project from the wall to facilitate use from wheelchair or crutches.

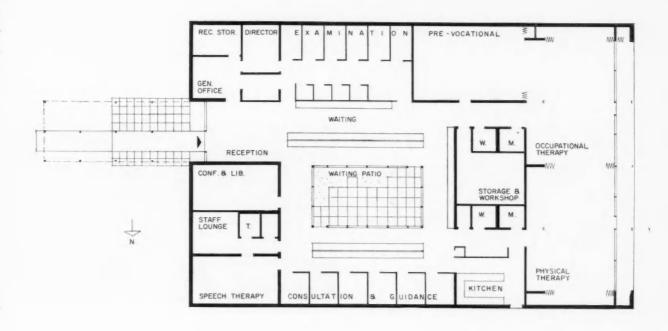
The entire building is air conditioned the year round. Built with the assistance of Hill-Burton funds, its cost was \$124,770 including all construction, extras, built-in furniture and landscaping. Cost of land, other furniture, and architects' fee are not included in this figure.



Waiting bench outside consultation and guidance booths



Entrance is without steps and protected by canopy. Seats are to help handle overflow on general clinic days



Frank Lots Miller

Also v Fat Phill

Also v Fat

Because of need for privacy building is closed on three sides but opens onto a fenced play-yard at rear

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3. Outpatient Rehabilitation Center

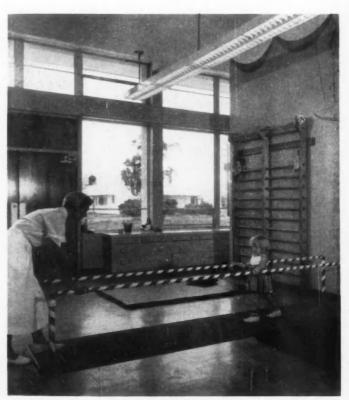
OWNER: Crippled Children's Society, Miami, Florida
LOCATION: Miami, Florida
ARCHITECTS: Weed-Russell-Johnson Associates
STRUCTURAL AND ELECTRICAL ENGINEERS:
Norman J. Dignum and Associates
MECHANICAL ENGINEER: R. L. Duffer
CONTRACTOR: M. R. Harrison Construction Company



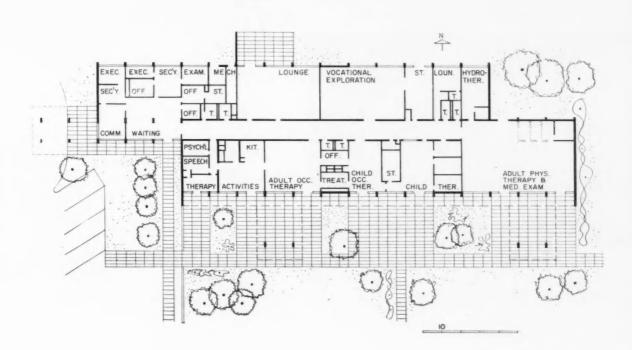
West elevation showing entrances

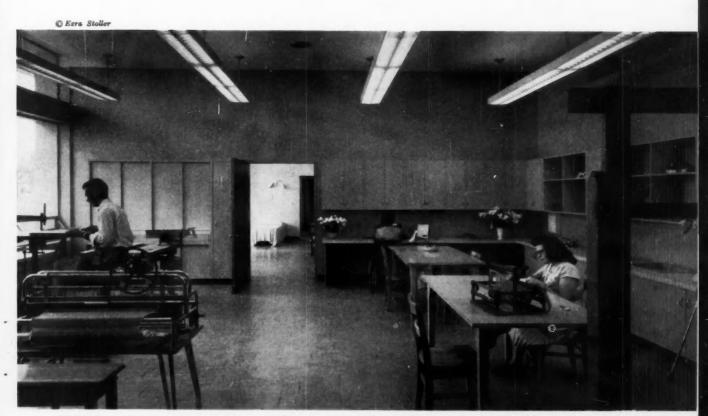
This rehabilitation center for children and adults follows most of the rules of good practice which have been carefully set up for these centers. It has no steps or ramps, and thresholds at doorways are flush. It is a one-story unit with everything located on the ground floor so that patients have access to treatment and outdoors without the need of elevators. In addition a one-story unit reduces the danger from fires and can be expanded easily in the future. Wide clearances are given everywhere in consideration of the fact that the patients are active and mobile in wheel chairs and on crutches. Window sills are kept low so that patients seated in wheel chairs may see out, and direct access from therapy rooms to an outdoor exercise area has been provided. The building is completely air conditioned in consideration of the strenuous physical activity which takes place.

In addition to obeying the rules, the research center solves problems of its own. Indoor-outdoor therapy areas face south to take advantage of the prevailing breeze while being shielded from cold north winds. This exposure makes good use of the expanse of property stretching southward away from vehicular traffic for a safe play and training area. Blank walls on the east and west eliminate low direct sun rays, while south overhangs shield therapy rooms from summer sun while admitting lower winter sun. A limited budget determined the choice of materials and structural system. Exterior wall surfaces are of river gravel faced concrete blocks. This finish requires no maintenance. The structural frame consists of reinforced concrete columns and tie beams supporting open web steel joists which frame the roof. The cost of the building was \$256,500, part of which was contributed through the Hill-Burton fund.



Low window sills, wide doors providing access to outside are provided for wheelchair patients



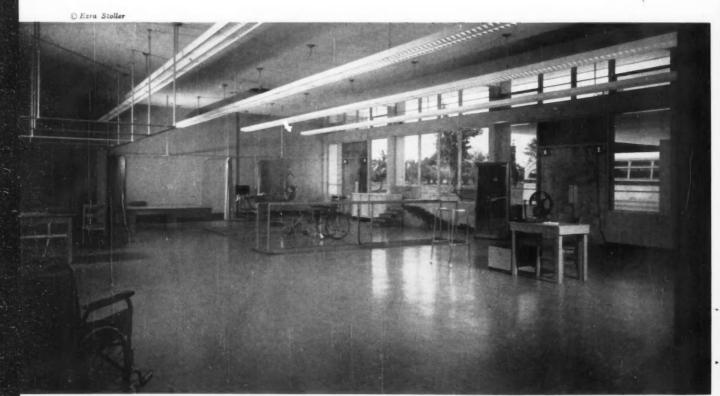


Wide clearances in arrangement of equipment and furniture should be standard procedure in rehabilitation centers. The adult occupational therapy room provides facilities for the practice of numerous skills

Rehabilitation Centers: Outpatient Unit



Note width of corridor and doors. A conflicting viewpoint exists on the use of handrails on corridor walls. Some doctors believe that the patient should not become dependent on aids not found in his normal environment. There is more general agreement about non-use in adult centers than in children's units



Suspended rods are for cubicle curtains to be drawn when necessary. These rods must hold curtains firmly enough to support patients who hold on to them for balance. Air space above will properly ventilate cubicles when curtained off

INDUSTRIAL BUILDINGS

BUILDING TYPES STUDY 278

(R)

Opportunities for Architects and Engineers At a recent business forecasting meeting, one speaker referred to the fact that business capital spending plans go up and down rather sharply every few years. A member of the audience asked why this should be true. The speaker thought for a moment. "You know," he said, "it's probably because too many business men go to forecasting sessions like this. They hear all the same talks, get the same ideas, and then go back to their offices and take the same actions."

Be that as it may, it is apparent that waves of business optimism and pessimism alternate more or less regularly—and surprisingly enough, it seems that management is more acutely sensitive to them than the general public is. There is a tendency to cut back sharply on plans for new productive capacity and for new research and development when the short-term outlook is shaky, and to expand when the short-term outlook is good. It might be argued that the short-term future should not have such a profound influence on what are, after all, long-range plans—but it does, and that's that.

The importance of all this, currently, is that we are now very clearly in an optimistic, or expansion period. The expansion began slowly, after it became fully evident to all that the 1958 recession was well interred, and we are now in what might be called the "momentum-gaining" phase of the upturn. The steel strike may have slowed the increase in capital outlays somewhat, but it does not seem to have had a serious impact on plans for future increases in business spending for new plant and equipment. Assuming no resumption of the strike, we should be able to look forward to at least two years of extremely high activity in the design and construction of industrial buildings.

Because of the recession, 1958 was the worst year for industrial construction that we have seen in some time. Even so, by the standards of only a decade or so ago, it loomed very large. Dodge statistics show that 1958 industrial building contracts totaled \$1.4 billion. The improvement in the past year will be in the neighborhood of 30 per cent, making the 1959 total somewhere around \$1.8 billion. During this year, we estimate that there will be a further gain of perhaps 20 per cent, which would put 1960 contracts for industrial construction at nearly \$2.2 billion.

Not all of this amount, of course, constitutes a market for architectural services. Some of the segments, such as chemical and petroleum refining, often utilize a great deal of highly specialized engineering, but relatively little in the pay of architectural design. On the other hand, there will be a large volume of contracts for government and university research facilities and commercial warehouses, which are closely akin to industrial building design, but which are not included in the \$2.2 billion figure.

While it is hard to come by a precise estimate of the industrial building market from the architect's point of view, two important points are apparent. First, the field is measured in billions of dollars. Second, it is currently growing rapidly; and while future set-backs may be expected, the long term trend will be substantially upward as industry tries to keep up with the growth of population and markets, with the development of new products and techniques, and with the erosion of time on existing facilities.

GEORGE CLINE SMITH, Vice President and Economist F. W. Dodge Corporation

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DESIGN FOR FURNITURE DISTRIBUTION

This California plant combines office facilities with required storage spaces and related assembly areas, in a tasteful, efficient, and orderly architectural solution

This combination office-warehouse-factory is a good example of the sort of enlightened industrial building design which can result from close collaboration between the architects, their consultants, and an enlightened client. Folke Ohlsson, president and chief designer of the furniture firm which owns this building puts it this way, "Quality architecture is to us a symbol of quality furniture. An architect does not merely select and indicate the assembly of materials in a sound and economic manner; he is also responsible for the creation of a pleasant working environment. This depends primarily on careful planning and design—the use of color, line, texture, and space. Realizing that the building must perform more than the function of an industrial operation, the goal here was to achieve an architectural environment that will promote interest in one's work." To this the architects add, "It was felt that the office section should show off the furniture in a warm, friendly atmosphere within and without the building."

Essentially, the structure of the building is composed of steel columns supporting structural glue-laminated wood beams and joists. The warehouse-factory section has walls of precast concrete with exposed aggregate; the office section is enclosed with glass, stained redwood, and a decorative copper screen. A system of thin vaulted plywood panels is used for roofing the central arcade of the office portion of the plant.



Morley Baer photos



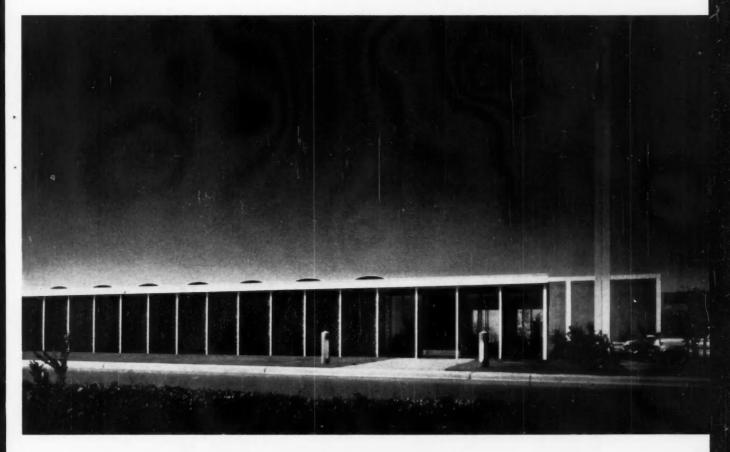
 $\operatorname{DUX}, \operatorname{INC.}, \operatorname{PLANT}$ and office, $\operatorname{BURLINGAME}, \operatorname{CALIF}.$

ARCHITECTS: Knorr & Elliot

 ${\tt STRUCTURAL\ ENGINEER:}\ Stefan\ J.\ Medwadowski$

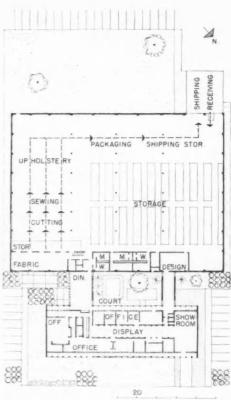
LANDSCAPE ARCHITECT: Richard Haag CONTRACTOR: Associated Construction Co.













Industrial Buildings

Furniture Plant and Office

The two views of the interior arcade (above, left and right) give some indication of the special character made possible by the use of light plywood vaults. These illustrations, together with the others shown, are representative of the warm residential quality achieved in the interiors, a character which seems highly functional and appropriate in a building of this type and purpose. The plan shows the simple division of functions within the building. Primarily, this consists of an office-showroom element, connected with a warehouse-production area by courts and covered multi-purpose corridors. The factory section is functionally subdivided into storage and production areas

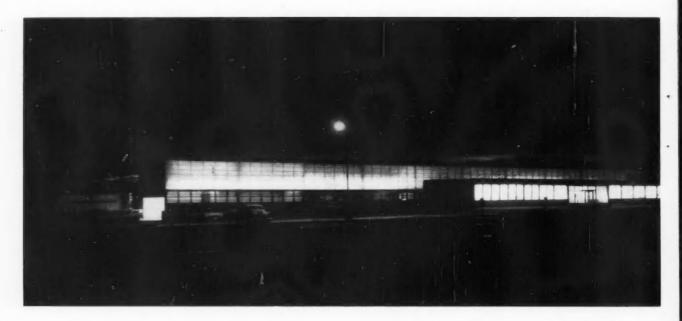


Morley Baer photos

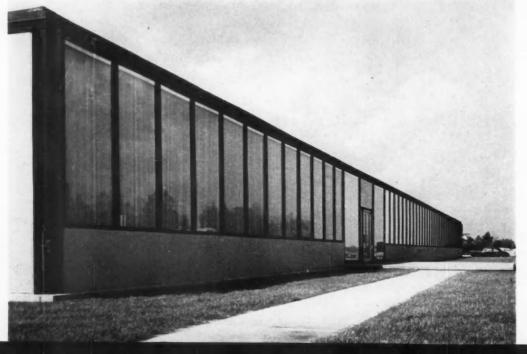


GLASS TILE ENCLOSED PAPER PLANT

Thin glass tile, set in an aluminum grid, forms a major portion of the exterior wall of this new plant, built to answer the demand for corrugated boxes

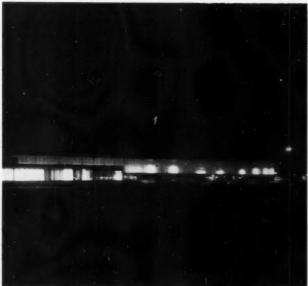








Phil Herzon



Bill Engdahl, Hedrich-Blessing

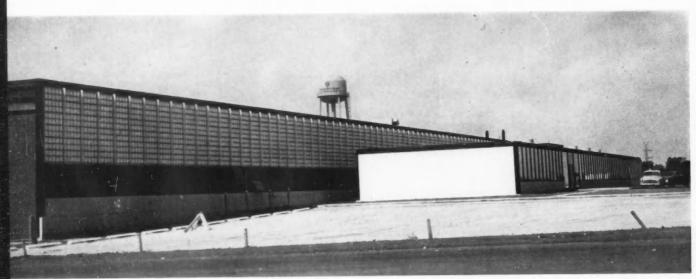
OWENS-ILLINOIS GLASS COMPANY, PAPER PRODUCTS DIVISION PLANT, CHICAGO, ILL.

ARCHITECTS & ENGINEERS: Skidmore, Owings & Merrill ASSOCIATES: Owens-Illinois Engineering Dept. CONTRACTOR: G. C. Luria Engineering Company

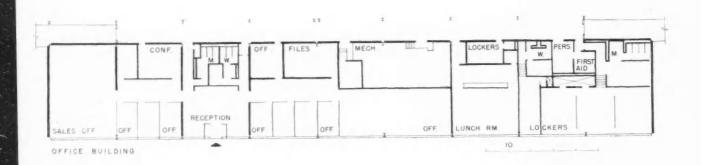
Working in close harmony with the client's engineering department, the architects of this plant have provided a highly efficient solution to the problems of automation (at full capacity, the 225,000-sq-ft plant will employ only 350 people) and high speed production (about 4500 sq ft of corrugated board per minute). The plant layout includes a pleasant office wing, somewhat separated from the production area for comfort and quiet, but closely related to it for ease of supervision. An extra dividend in the design is the opportunity for showing off one of the company's products in its largest single installation, the long wall of thin glass block (tile) prefabricated into 2- by 5-ft aluminum-framed panels.

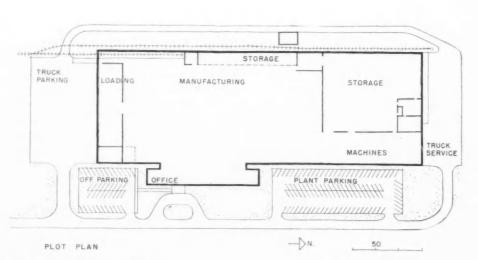
Most of the production in this plant will consist of corrugated paper boxes for a variety of products, ranging in carrying capacity from about one pound to the two ton size. Demand for these containers has grown rapidly, and they are now rapidly replacing wooden containers for many purposes. Other products to be manufactured here may include such diverse items as concrete forms, in addition to boxes.

The building structure is steel frame with bar joists and a steel roof deck. Exterior walls, other than the curtain wall, are constructed of precast concrete panels. The roof is completely insulated with glass fiber.



Phil Herzog



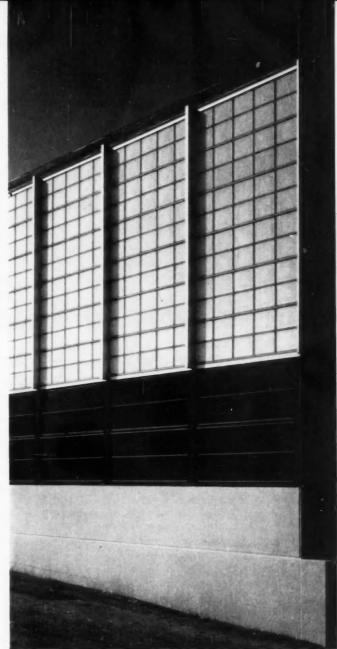


Industrial Buildings

Paper Products Plant

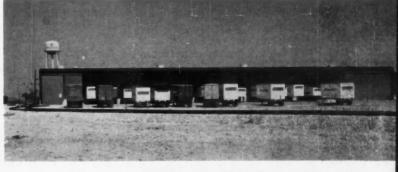
In the illustration (left) may be seen the projecting office wing with the thin glass block curtain wall of the plant behind. A closeup of an exterior corner of this wall is shown below. Its appearance on the interior of the building is shown in the photograph at the right; some of the automatic machinery appears in the foreground. The over-all plan is simple and well-studied for utmost efficiency of operation. In the large-scale plan of the office wing may be seen the quite complete facilities for sales and general office personnel, locker rooms and other facilities for plant workers, and the lunch room. The photograph, below, right, shows the 15 truck capacity loading dock. Additional shipping flexibility is provided for by a rail siding which extends into the plant proper





Hube Henry, Hedrich-Blessing





ARCHITECTURAL RECORD January 1960

COMPLEX PROBLEMS SOLVED IN PLANT

The programming, organizational, and planning problems involved in the design of a large plant for a major auto company have been efficiently handled here

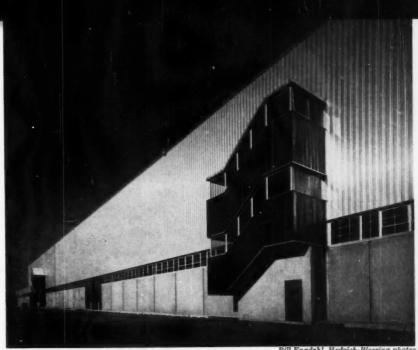
In this huge new assembly plant for one of the giants of the American automobile industry, may be seen how an architectural and engineering firm geared to this sort of work can produce an efficiently functioning complex with the architectural attributes necessary for modern production. This plant is big-it contains about 1.4 million sq ft of floor area in the assembly building alone. In addition, there are numerous smaller auxiliary buildings, including an office, a power house, a paint mix building, two guardhouses, and a new car checkout center. Other facilities provided are a complete industrial waste treatment system, an oil tank area, an electrical substation, and an oxygen-acetylene building. The problems solved here are those which must be solved in any industrial building, regardless of its size, but here, the problems multiply and expand with the huge scale and complexity of the operations to be performed.

It is to the credit of the team of professionals who designed the plant that the final result works, yet retains some measure of human scale; it functions admirably as an enclosure for high-speed, present-day production, yet provides for the comfort of the great numbers of workers who must spend their working lives inside. As is usual in the U. S. for a plant of this scope, the structure is steel frame. Less usual, perhaps, is the wall which is composed of a lower band of precast concrete panels, 13 ft 6 in. high, a middle band of continuous windows, and an upper band of aluminum siding. A 15-ft-wide strip of sash with an emergency door in the center is extended down to the floor at 225-ft intervals along the wall.

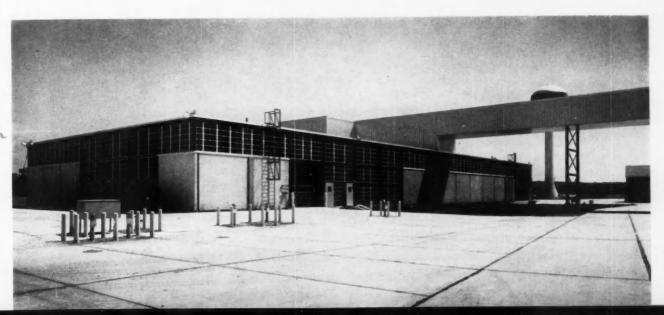


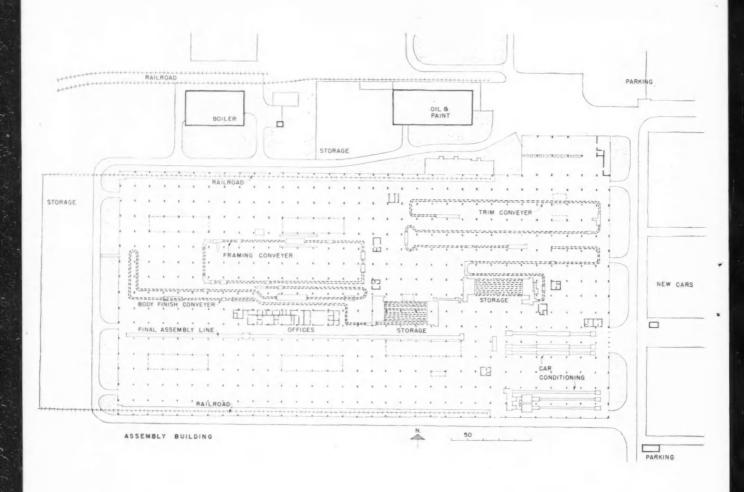
ASSEMBLY PLANT, CHRYSLER CORPORATION, ST. LOUIS (FENTON), MISSOURI

ARCHITECTS & ENGINEERS: Albert Kahn Associated Architects & Engineers, Inc. CONTRACTOR: H. D. Tousley Co., Inc.











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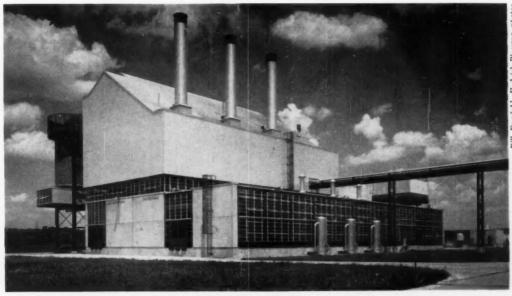
Industrial Buildings



Assembly Plant

The plan and aerial photograph across-page serve to indicate the size and scope of this large plant. Included in the present project are the assembly plant and all of its auxiliary buildings except the administration building at the front (designed by Sverdrup & Parcel; Fruin Colnon Co., Contractor). Right, top: plant protection building (guardhouse). Right, center: a new checkout building. Below: power house. The assembly building is one-story, but includes a large mezzanine, which may be seen in the aerial view. To the right of the assembly building in this view is shown the large parking lot (approximately 4500 car capacity)





Bill Engdahl. Hedrich

STANDARD UNITS FOR CONSISTENCY

A system of coordinated materials, sizes, and modules has been used for bringing order into these buildings for the storage and distribution of automobile replacement parts

In addition to the obvious problems of material handling involved in the design of a large (in excess of a million sq ft) distribution center of this sort, the architects felt that considerable effort should go into the provision of consistency of design in all of the elements of the complex. They wanted to provide this consistency, within the framework of attractive landscaping and appearance, on a human scale. In order to achieve these goals, the architects established a common denominator, used throughout the building, of coordinated sash, door, and sill heights and sizes. In so far as was possible, the materials chosen were those which could be used throughout, except where unusual functional requirements dictated otherwise. Materials handling considerations in the design of this plant are based on the principle of continuous flow of materials in, through, and out of the plant. To facilitate this, both long sides of the building are used for enclosed truck and rail docks. From these areas, many of the materials are moved entirely by floor conveyors, controlled electronically. Fork trucks and other means are used where necessary.

The distribution building is one-story with 50- by 50-ft bays, except for a one-bay-wide, two-story section at the north end. Since no cranes or other major overhead loads are used, the structure utilizes economical steel framing with a light steel truss roof. The office wing first story is reinforced concrete, with a steel frame second story. This construction was dictated by site considerations (the first floor is partially below grade).



Hube Henry, Hedrich-Blessing photos



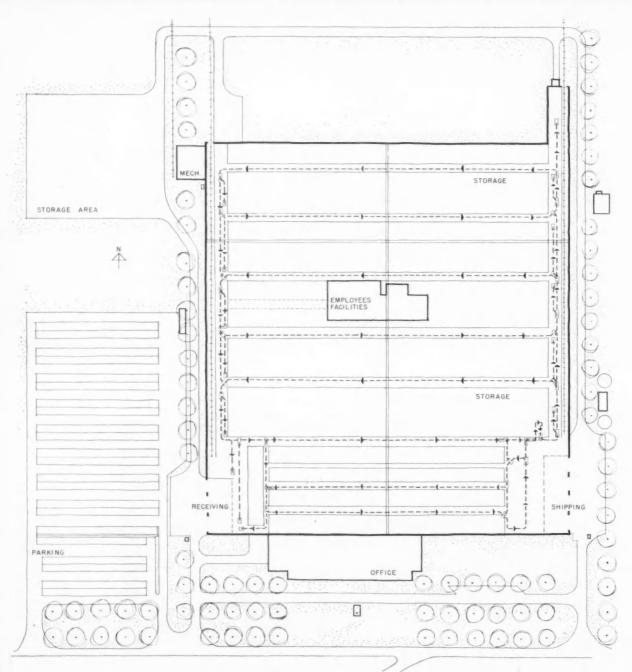
Major supply depot, chevrolet motor division, general motors corporation, flint, mich. Architects & engineers: Albert Kahn, Associated Architects & Engineers, Inc. contractor: The J. A. Utley Company











Industrial Buildings

Supply Depot

In the photographs across-page are shown the large power house for this plant and the main receiving entrance (a major consideration in a distribution center of this scope). On the plan may be seen the general patterns of the flow lines for incoming items, their progression through the space to storage points and finally to shipping. It may be noted that office functions are almost entirely segregated from those of the warehouse area. For convenience and ease of use, the facilities for warehouse employes are located near the center of the area in which these employes work. The illustrations below and right show the entrance lobby and reception area of the main section office

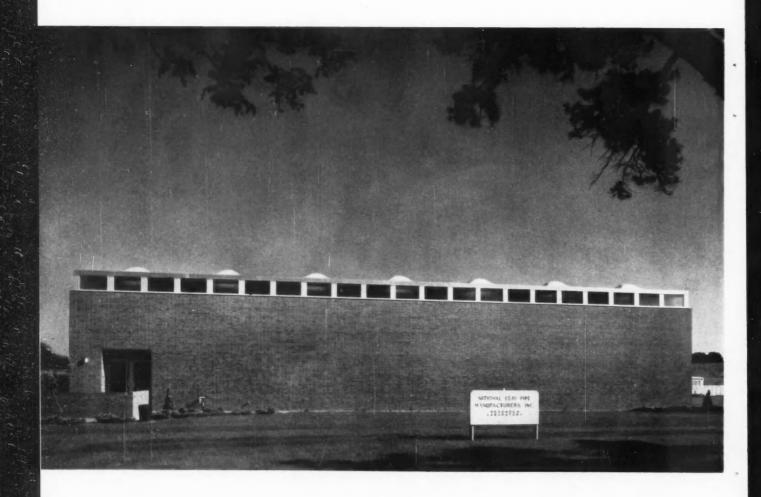


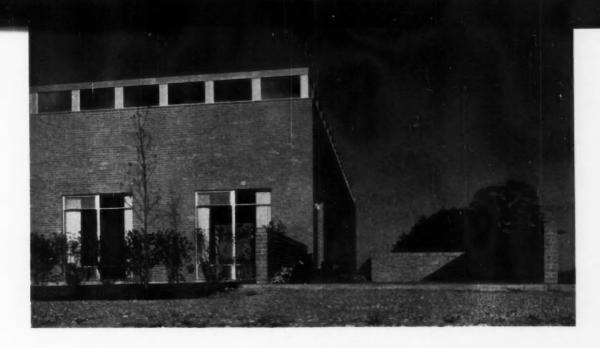


Hube Henry, Hedrich

ECONOMICAL DESIGN FOR RESEARCH

In this association laboratory, provisions are made for research into the uses and improvement of clay sewer pipe, within a simple, highly flexible, well-illuminated space





D. M. STRICKLAND RESEARCH LABORATORY, NATIONAL CLAY PIPE MANUFACTURERS, INC., CRYSTAL LAKE, ILL.

ARCHITECTS: George Fred Keck-William Keck CONTRACTOR: Rieke Construction Co.

With extreme economy of means and materials, the architects of this small research building have provided their clients with space for the types of experimental work on clay pipe and related products to be handled. Major program requirements included open floor area which could be used for various large scale experiments and mockups, a high level of natural and artificial illumination, and adequate wall space for the placement of laboratory benches and equipment. Therefore, the architects came to use the present scheme, which is composed of a large open laboratory area with all offices and auxiliary spaces grouped together at one end. To provide the required amount of wall space, cavity walls of brick were used without windows, except for the high continuous course, bar joist high, which runs around the building. To supplement the natural light from this source, a number of plastic dome skylights were introduced in the roof.

Extreme care was taken in the selection of the brick and the bond used in order to insure that this work would represent the highest quality of materials and workmanship possible today. Special mechanical and electrical requirements provided for include conduits for electric, water, air, and gas services hung at the 8-ft level over the lab floor, an open sediment collector drain in the center of the floor, a high capacity electric panel to provide for future kiln installations, and a large exhaust fan in one of the skylights to remove heat from the kilns.



Herrlin Studio photos





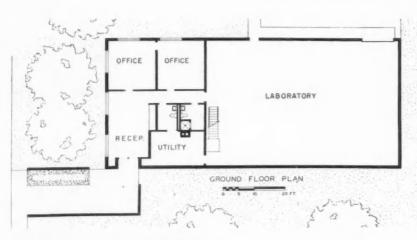
Herrlin Studio photos

Industrial Buildings

Clay Pipe Laboratory

In the illustration above, right, is shown a portion of the laboratory. Brick cavity walls, exposed both sides, support a long-span joist roof structure. On the second level, over the office area, additional space is available for experimental work and storage. The photograph below, right, shows the entrance lobby-reception area. The interior treatment, consisting of exposed brick walls contrasted with natural wood, is typical of the office area. In the illustration below may be seen the continuation of these walls into one of the private offices thereby tying the spaces together, visually. The extreme simplicity of the plan gives some indication of the economy of means employed





PLANNED FOR ADVANCED RESEARCH



Julius Shulman

Located on a rugged site north of San Diego, these buildings form the nucleus for what will be the world's largest, most diversified private nuclear R & D center

JOHN JAY HOPKINS LABORATORY FOR PURE AND APPLIED SCIENCE, GENERAL ATOMIC, A DIVISION OF GENERAL DYNAMICS CORP., TORREY PINES MESA, CALIF.

ARCHITECTS: Pereira & Luckman
CONSULTING STRUCTURAL ENGINEERS:
Johnson & Nielsen

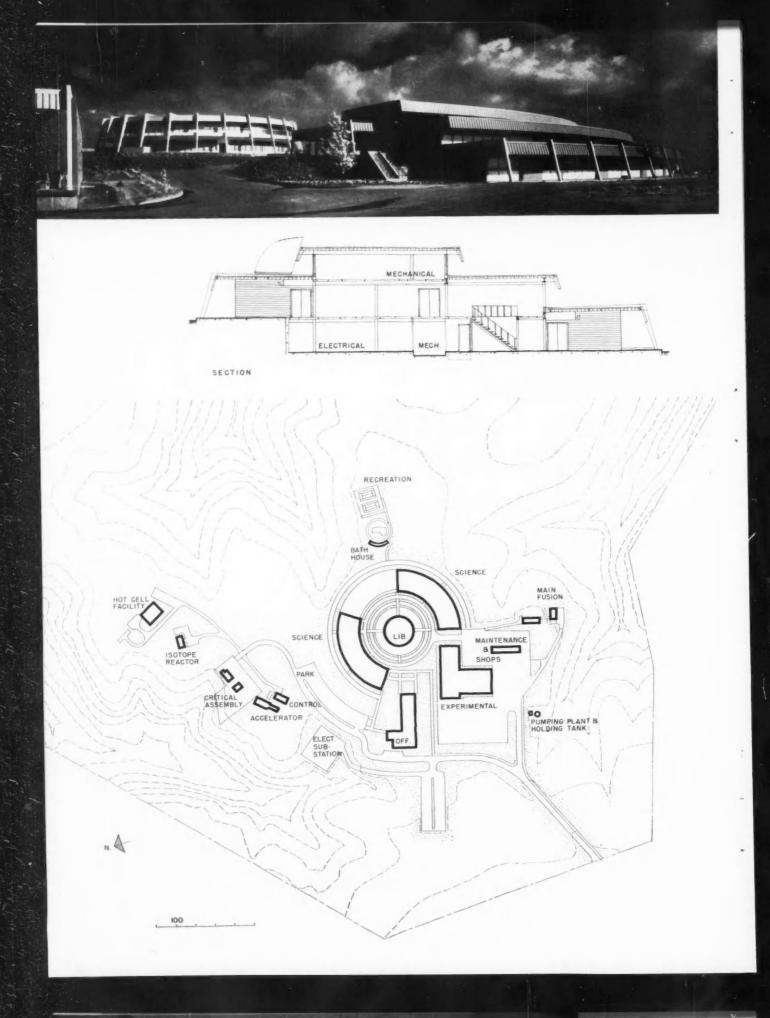
CONSULTING MECHANICAL AND ELECTRICAL ENGINEERS:

Levine & McCann

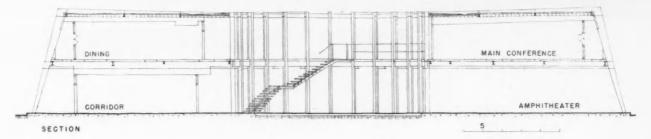
LANDSCAPE ARCHITECT: Robert Herrick Carter CONTRACTOR: Haas-Haynie-Frandsen, Inc.

In this group of buildings, whose functions are concerned with the most advanced of sciences, nuclear research, the architects have achieved a campus-like layout which reflects something of the advanced nature of the activities carried on within the buildings. The present buildings are but part of the final scheme which allows for further development of the large site and a number of additional buildings. Eventually, all of the necessary facilities for a completely diversified research and development nuclear complex will be included. The shapes of the present buildings derive not only from nuclear science, but quite logically from the natural configuration of the site, with its inherent design problems. The building designs seem to accept the site as an ally. The resulting appearance of buildings and landscape seems somehow right and fitting.

The structure of the buildings, which is exposed, is a dominant aspect of the appearance. It consists of custom designed tapered bents, fabricated from structural steel plate. This system, in addition to its other advantages, proved to be extremely economical and fast to erect. Roofs and upper portions of walls and canopies are steel decking. Walls below the decking combine integrally colored, textured concrete block with a glass and steel curtain wall. Floors are concrete slab, covered with terrazzo or resilient flooring. Movable partitions are used wherever feasible to achieve the utmost in flexibility.







Industrial Buildings

John Jay Hopkins Laboratory

As may be seen in the plan, the library building forms the hub of the layout. In this building are located technical information service areas, the cafeteria, printing, reproduction, photography facilities, and conference rooms. The section of this building (above) shows the open well and stairs which afford access to various spaces. Grouped around the library building are the two main science building units. These contain the laboratories and offices necessary for work in metallurgy, chemistry, experimental physics, engineering, and reactor physics. The L-shaped experimental building houses facilities for large-scale experiments, and for work involving the handling of nuclear materials. Other important buildings include the office building (administration and engineering), critical assembly, and hot cell buildings



ARCHITECTURAL RECORD January 1960



Mins Shu



H. L. Van Pelt



Industrial Buildings



John Jay Hopkins Laboratory

The illustrations give an indication of the appearance and detailing of the steel bent structure and metal decking, used for the library and the main science buildings. In all of these buildings the steel bents are carried to the outside, forming covered walkways. The steel decking is installed on the same angle as the bents, creating a combination of overhang and canted sun shields which has proved highly effective in controlling the solar gain within the buildings. In the close-ups may be seen the extremely fine finish given the welds of the steel plate forming the bents and the attention by the architects to effects of planes, solids, and voids

Architectural Engineering

A 1500 Watt "Shaft" of Light

Can you picture a moderate-sized auditorium, illuminated to a level of 40 footcandles by only four lamps, each 10 inches long and no larger in diameter than your little finger? This is not a laboratory dream, but a working installation to be ready this year. [The fixture is a small, V-shaped trough which indirectly lights the ceiling. Each lamp operates at 1500 watts, 277 volts, and the total of 6 kw is equivalent to the load of an electric range; the lamp also is made in a 500-w size.] Thus it is again clear that the problem in lighting of buildings is not the lack of more versatile sources, but in the assimilation by designers of those being made available by industry. The potentialities for such a highoutput lamp are exciting. Outside the building field, a space-age possibility is to use these quartz lighting lamps to produce food by photosynthesis aboard rocket ships or in atomic submarines. First application was a 150-w lamp for wing-tip lighting on jet planes. But closer to AR readers are such applications as large area lighting in commercial and industrial buildings and sports arenas; show window, counter and display lighting in stores; and building and airport runway flood lighting. The lamp for lighting is a cousin to the quartz infrared lamp used for heating which has a lower filament temperature and is used in industry and for such off-beat applications as theater marquees to take the chill off between-the-acts smokers. Characteristics and applications of the quartz lighting lamp were reported in a paper given at the recent National Technical Conference of the Illuminating Engineering Society by Carl J. Allen and Ronald L. Paugh of G. E.'s Large Lamp Department in Cleveland.

The Distress of "Cold Feet"

The term, "cold feet," has both physiological and emotional implications, and the former have just been investigated by two researchers at the Division of Building Research in Melbourne, Australia. In a publication called *Temperature and Comfort of the Human Foot*, R. W., Muncy and T. S. Holden describe a study in which they recorded temperatures of the ball of the foot and corresponding subjective reactions for 17 normally clad people in a room at temperatures ranging from 60 to 80 F. Thirteen people felt that temperature near the floor was of prime importance in producing a sensation of comfort or discomfort. The scientists' conclusion: . . . "heating for comfort should aim primarily at heating the air near the floor, where the air temperature is apparently critical for most people . . . This requires a change of ideas as to the best place to locate thermostats, and of methods for assessing the efficiency of heating systems."

Silencing the Riveting Hammer

News that the lowly rivet has practically been displaced by the more efficient, more economical and less noisy high strength bolt makes us happy for the improved technology, but perhaps a bit sad for the sidewalk superintendent. He's going to miss the spell-binding sight of the rivet in its fiery toss. And another thing, what will the encyclopedias and documentary movies do to symbolize the construction of steel skyscrapers? While the operation of installing high strength bolts may not be dramatic, the statistics concerning their use are. Almost a million have been used for structural applications since 1951, when the authoritative specification for high strength bolts was issued by the Research Council on Riveted and Bolted Structural Joints. And since 1955 only three of the 20 buildings over 25 stories erected in New York City used rivets for field connections. These figures come from Edward R. Estes Jr., Research Engineer for the American Institute of Steel Construction who, in a recent talk before the American Standards Association, predicted that in another eight years the rivet may be as much a rarity in shop fabrication as in the field.

This Month's AE Section

 $AUTOMATIC \ CONTROLS \ FOR \ HEATING \ AND \ AIR \ CONDITIONING, \\ pp. 182-189.$

PRODUCTS REPORTS, p. 191. OFFICE LITERATURE, p. 192.

TIME-SAVER STANDARDS, Structural Applications of Welded Steel Tubing, pp. 190, 195, 197, 199.

AUTOMATIC CONTROLS

for Heating and Air Conditioning

The Basic Devices
Systems Compared
Control Methods in a School
A Sample Specification
Recent Trends

by Arthur L. Spaet, Partner, Slocum & Fuller, Consulting Engineers, New York

In the old days if a room became warm and stuffy, one merely opened the window and shut off the radiator valve. Now, the windows stay closed, except perhaps for cleaning, while automatic controls take charge of compensating for changes in outdoor temperature, wind and sun, and internal loads from people, lights and equipment.

This is not to say that early systems had no automatic temperature controls whatever. However, these controls were usually applied centrally to the system to modify output of heat with variations in outdoor temperature. Their prime purpose was to save fuel. Today the emphasis has shifted to local and individual control of thermal comfort in specific areas.

Perhaps the greatest boost to the development and wider use of automatic controls for thermal comfort was the increased acceptance of air conditioning after the Second World War. Also the growth of multistory buildings after the War brought with it new techniques—the division between perimeter and interior systems, high velocity distribution, dual duct systems—and the pale imperfections of early controls became magnified.

Significant too is the fact that the sophisticated tenant of 1960 is himself both more demanding and more critical in his comfort requirements:

the design and performance criteria for heating, ventilating and air conditioning are written directly into the terms of his lease.

Many modern buildings feel the effect of weather changes much faster than older ones because of more glass and less weight in the exterior walls. Further, there is the distinction between varying conditions at the exterior and the relatively stable thermal conditions in the interior of a building—all of which must be sensed and reacted to by the control system.

Because of solar and electrical loads, it is not uncommon for the refrigeration plant to operate throughout the winter months, making necessary another complex set of gadgets and automatic devices to enable the cooling tower to operate in the heart of winter without the danger of freezing.

Although it is true that many automatic features may be omitted and many localized problems solved by manual operation, heating of outdoor air or unnecessary cooling to overcome some problem of unbalance can waste costly Btu's at a naggingly expensive rate.

It has been estimated that a proper set of automatic controls can save between 10 and 30 per cent of the annual operating cost for a given system. For a building of approximately 150,000 square feet, a 20 per

cent fuel saving could amount to about \$3000 a year. With controls costing about three per cent of the total for the heating and air conditioning installation, this cost could be amortized in six years.

In summary, automatic temperature controls augment the following

a. Human comfort

b. Fuel economy

 Accurate control of temperature and humidity for industrial applications.

d. Safety. While this function may not be readily recognized, it includes: shut down of fans in case of fire, stopping a refrigeration condensing unit if there is no water in the system, or preventing steam coils from freezing.

DEFINITION OF AUTOMATIC CONTROLS

In the broadest sense, temperature controls are a subdivision of the very extensive field of instrumentation. As normally conceived in heating and air conditioning design, however, automatic temperature controls include three basic types of devices:

1. A sensing or pilot device.

An actuating or motor device.
 A reading, or dial or indicator de-

vice.

Sensing devices may be responsive to air or water temperature, steam pressure, or air velocity, and will consist of such instruments as thermostats, aquastats, static pressure regulators and similar devices. These are the "eyes and ears" of any control system.

The sensing devices for any system may be all-electric, all-pneumatic, electronic or combinations of all three.

The second group, the actuating and operating devices, are essentially motor-controlled dampers or valves, corresponding to the fingers and muscles of the systems. The "motors" may be hydraulic cylinders, air diaphragms, or compressed air cylinders. If the system is electrically powered, the operators are usually electric motors, frequently with reversible and adjustable speeds, or solenoid actuators.

The third type of equipment, the instrumentation of the system, in addition to thermometers and gauges, can be extended to include such refinements as clockwork mechanisms to start and stop motors, radiant thermometers, hygrostats, draft gauges, two- and three-pen recording controllers, etc.

By the addition of wiring, piping, auxiliary relays, contactors and alarms, the above components are combined into an integrated automatic temperature control system.

All-electric controls are the usual choice for smaller systems. As the number of control devices and control points increases, a break-even point is reached after which pneumatic controls are less expensive.

The reason for this is that when a system becomes larger and more complex, it is far less expensive to interconnect the control elements with pneumatic tubing and pneumatic operators than with electric wire and conduit and electric motors. Packaged air conditioning equipment up to about 50 tons usually falls within the range where electric controls afford optimum economy. Central systems with several zones, from roughly 30 tons or over, are usually controlled most effectively by pneumatic equipment. Note the overlap in the area of about 30 to 50 tons. Above this, the economic advantage is definitely with pneumatic systems, and all large systems are pneumatically operated.

More and more frequently, electric and electronic devices are integrated with pneumatic systems. However if the system has a central air compressor and runs of pneumatic (air) tubing, it is usually classed as pneumatic.

The difference between electric and electronic systems lies in a somewhat esoteric refinement in equipment. In an electric control system,

the thermostat sends its signal directly to the damper or valve motor. In an electronic control system, the thermostat sends a minute signal to an electronic relay, where the signal is measured and amplified. The relay in turn affects the control over the damper or valve, or over supplementary control circuits. The electronic control equipment may be used to activate any type of electric or pneumatic device, in any of numerous modes or cycles of operation.

Each of the systems previously mentioned is dependent upon an external source of energy. Another type of equipment is the self-contained device which has its own motive power. While self-contained devices have extensive application, they are not used generally where sequence operation is required.

CONTROL SYSTEMS COMPARED

Advantages and disadvantages of the three types of systems, self-contained, electric and pneumatic, are as follows:

SELF-CONTAINED

Advantages

- 1. Basic and rugged. Simple construction, little mechanism to fail.
- 2. Low in cost.
- 3. Skilled labor not required.
- 4. Independent of power failure.
- 5. Easy to modify or extend. Controls may be added as needed without regard for existing installation.

Disadvantages

- 1. Awkward to install where thermostat must be remote from controlled valve. Running the capillary tubing may present an installation problem.
- 2. Cannot be interlocked. Modern systems require integrated control of valves, motors, dampers.
- 3. Difficult to repair. Normally, upon failure or damage, it is easier to replace the entire assembly.

ELECTRIC

Advantages

- 1. Low cost on small jobs; on medium size jobs, local electric codes and the contractor's experience can cause relative costs to vary.
- 2. Sensitive; may be interlocked.
- 3. Can be installed by any electrician who understands a wiring diagram.
- 4. Easy to expand.
- 5. Control circuits use little or no power.
- Readily adaptable to architectural wiring.

Disadvantages

1. Higher cost on larger installa-

Sensing Pneumatic Round Insertion Humidistat Electric Heat-Cool Thermostat, Fan Controller Electric Room Thermostat **Pneumatic** Room Thermostat **Pressure Controller Gradual Type Dual Pressure Controller** Pressure Switch, Pressure Switch, Mercury Type **Bellows** type

Control Methods in a School

Control techniques vary from the simple to the complex, from opening and closing a valve on a convector to sequence operation of several interrelated devices of a whole system.

These techniques may be classified under three general headings: (1) basic or local space control, (2) basic outdoor control and (3) medium control. They are illustrated in the floor plan of a hypothetical school and accompanying tables.

System	Provision of Comfort Control	Response to Outside Condition	Response to Inside Condition
1 Basic Space Control	Good	Good	Excellent
2 Space Control w/Outdoor Compensation	Very Good	Very Good	Excellent
3 Space & Medium Control	Good	Good	Excellent
4 Space & Medium Control w/Outdoor Compensation	Excellent	Excellent	Excellent
5 Basic Medium Control	Poor	Poor	Poor
6 Medium Control w/Outdoor Compensation	Fair	Very Good	Poor
7 Basic Outdoor Control	Fair	Excellent	Poor

Table extracted from Manual of Automatic Control; published by Minneapolis Honeywell Regulator Co.

METHOD 1: Basic space control

EXAMPLE: Individual control of classrooms, temperature of each room being regulated by its own thermostat

METHOD 2: Space control with outdoor compensation

EXAMPLE: Individual control of radiant panels in kindergarten; outdoor controller modifying action of indoor thermostat

(METHOD 3 combines the features of 2 and 5. Method 4 combines 2 and 5 plus outdoor compensation)

METHOD 5: Basic medium control

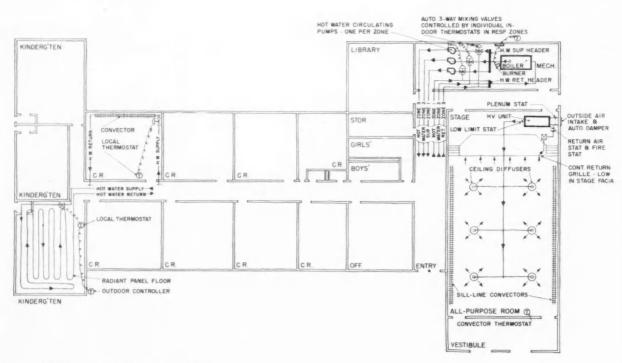
EXAMPLE: HV unit in All-Purpose Room; a discharge air thermostat controls steam ar hot water valve

METHOD 6: Medium control with outdoor compensation

EXAMPLE: Supply water temperature to each zone is varied by means of a three-way mixing valve; in addition, an outdoor controller overrides indoor zone thermostats

METHOD 7: Basic outdoor control

EXAMPLE: Outdoor thermostat turns burner on and off. Applicable only to very small schools.



tions. As a rough rule of thumb, where the number of controlled elements exceeds 25 to 40, a pneumatic system will be less costly. In general, item for item, pneumatic devices cost less. It is the initial cost of the pneumatic air compressor that gives electric systems the edge on small installations.

2. Completely dependent upon electric power.

3. Requires skilled labor to service, maintain or modify.

PNEUMATIC

Advantages

1. Low cost on larger installations.
2. Inexpensive indicators available. Small pressure gauges at each device indicate exactly the control demand and the device performance at any inspection. Remote temperature indication is also possible through use of small pressure gauges calibrated to give temperatures directly.

3. May be interlocked.

4. Some reserve of power. In the event of an electric failure, the air storage tank will maintain the system in operation for a period of time until air pressure is depleted.

5. Excellent sensitivity.

6. Adaptable to any building construction.

Disadvantages

1. Higher first cost on small jobs.

2. Requires skill in installing. For complex systems, requires specialized know-how.

3. Less easily expanded. Also in the event of a large addition to a new building, a supplementary air compressor may be required.

WORDS OF CAUTION

A particular control sequence may be achieved by any number of combinations of control equipment. While it is not simple to generalize, there are certain requirements for high quality control which are broadly applicable:

1. A system having constant air volume with variable air temperature is usually superior to a system with variable air volume.

2. A good air distribution system is a must.

a. Extend ductwork to all parts of the space. Avoid long air "throws." b. Insulate ductwork running through warm (or cool) spaces.

c. Locate supply and return air outlets to avoid short circuiting.

d. Several small diffusers are better than one large one.

3. The smaller the individual controlled area, the better the control.

4. Locate thermostats where they

measure a condition truly representative of the space.

5. Proper selection of all equipment, coils, piping, pumps, etc., is essential. All are interrelated.

A frequent source of difficulty is the location or connection of the sensing element so that it does not directly sense the needs of the area to be controlled. For example, if a steam valve is controlled only by a sensing device located in the air supply to a room, the device only knows the temperature of the air entering the room. It can never respond to the changing conditions within the room itself.

Conversely, in a large open area with much exposed glass at the perimeter, perimeter radiation can be controlled effectively by a sensing element located outdoors, since the heat loss at the perimeter will almost always be related directly to the outdoor temperature.

Another precaution: be careful in locating thermostats so that they are not affected by a direct blow of a heating or cooling outlet, the direct rays of the sun, or a similar source of warm or cool Btu's, which will confuse the operating device.

Another difficulty is that all too frequently air distribution systems are not balanced at the individual air outlets. While all components may be carefully installed in accordance with the design drawings, it has been my experience, again and again, that the final adjustment is not made.

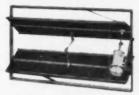
A final word of caution: automatic controls require planned, preventive maintenance. Frequently I have seen systems in which the damper linkage is out of adjustment, thermostats are out of calibration, or not functioning, dampers are blocked in the open or closed position and cannot operate at all, control devices are shut off, or pneumatic tubing has been "temporarily" disconnected, etc.

RECENT TRENDS

Many changes and advances have taken place in recent years in the field of heating and air conditioning. These include the development of large, hermetic type compressors, greater acceptance and use of high temperature hot water, heat pumps, high velocity air conditioning supply systems, snow melting systems, steam absorption refrigeration machines, development of new materials such as polyvinyl chloride piping, a general trend toward higher motor rotating speed and more compact equipment.

Along with the above changes in

Actuating



Pneumatic Cylinder & Damper



Diaphragm Motor & 3-way Valve



Electric Motor & Louver Damper



Solenoid Operator & Shut-off Valve



Diaphragm Motor & Modulating Valve





Electric Motor & 2-Position Valve



Electric Motor & Modulating Valve

heating and air conditioning equipment have come corresponding changes in automatic temperature control.

Here are some of the more prominent changes taking place in control

equipment:

1. Miniaturization of instruments such as thermometers, gauges, and transmitters.

2. Increased use of remote instrumentation, gauges, and controls.

3. Factory wired and preset control assemblies.

4. Redesign of equipment for more pleasing and modern appearance.

5. Noise attentuating and pressure reducing boxes for high velocity sys-

6. Data control centers.

MINIATURIZATION OF EQUIPMENT

Along with the increased growth and acceptance of automatic controls and self-regulating devices has come the need for smaller instrument compo-

Large gauges and dials of generous proportions were common in early control boards. No self-respecting engineer or contractor who took any pride in his work would install a steam gauge smaller than 10 to 12 inches in diameter, and a shining brass case with an ample and decorative flange was de rigeur. However, as the quantity of gauges and recording instruments increased, the size of the control panel increased accordingly, and the need for small gauges became obvious.

Many of the major suppliers are making available instruments with smaller gauges and dials. Many catalogues today refer to this type of equipment as "miniature" indicators. It is probably that these small type of gauges, with dials approximately three inches in diameter, will soon become standard equipment.

REMOTE MOTOR CONTROLS

While there is still some disagreement among design and operating engineers as to the pros and cons of remote vs local starting of air conditioning motors, there is no doubt that in a large plant or office building, centralized starting and stopping of small and medium-sized motors for the air conditioning equipment has distinct advantages.

This applies to motors up to approximately 50 to 75 horsepower. Larger motors are preferably started locally, with the motor in full sight of the operator.

One reason that the design engineer hesitates before specifying remote starting of motors is the added cost of the electric wiring and conduit from the central control panel to every remote machine room in the building.

It is now possible, though, to have remote starting and stopping of eletric motors without interconnecting control wiring. This system, originally developed by IBM, was first applied for the control and correction of clocks from a central transmitter, without the necessity for special control wiring. Corrective impulses at a high frequency are transmitted directly through the 110 volt building power wiring.

Similarly, to start or stop any motor, a high frequency signal is sent through the house wiring from a central control panel. At some remote point, a crystal controlled receiver acts as a relay to actuate a motor control circuit, in response to a signal of a particular frequency. This eliminates the wire and conduit for the usual three wire control circuit between the motor controller and the motor start-stop station.

The advantages of such equipment are dramatically demonstrated in an installation at Fort Ord, California. Hundreds of individual buildings are centrally controlled and scheduled. Signals on a frequency of 5850 cycles per second are superimposed on the existing 60 cycle wiring. If local manual control were attempted, it might take a team of men as many as ten days just to visit each building on the base.

Similar equipment performs a host of electric on-off duties at the new Overseas Arrival Building in New York's International Airport. Fans, pumps, unit ventilators, and area and sign lighting are controlled without special control wiring. It is interesting that not one but six control signal frequencies are used; the signals are transmitted both on the primary as well as on the secondary power distribution systems.

REMOTE READING PNEUMATIC TYPE GAUGES

Previously, requirements for remote temperature readings were met by use of a resistance thermometer and electric wiring between the sensing device, an amplifier, and an indicating or reading device. But by adding suitable wiring and control devices. certain electrically operated remote reading temperature devices permit the additional refinement of remote reset or remote adjustment of temperatures.

A recent application of an old principle permits transmission of room or duct temperatures to remote points by means of pneumatic instruments; this eliminates electric wiring, conduit, and electric amplifiers, and substitutes pneumatic control tubing and pneumatic devices. This equipment includes a pneumatic sensing device such as an insertion thermostat. Variations in temperature are transmitted as variations in air pressure, and the remote reading device is a bourdon type pressure gauge, calibrated to read temperature directly.

Another interesting change in the technique of running pneumatic control lines is the use of plastic tubing. Up to this time, pneumatic control tubing was of steel pipe or copper tubing, installed at a relatively slow and tedious pace, one tube or pipe at a time. Today, availability of plasticized or semi-rigid polyvinyl chloride or polyethylene tubing can make the piping instrumentation job go much faster. The tubing is installed in multiple, with many tubes grouped together inside a single protective jacket. Identification is simplified by having the tubes in brilliant and readily identifiable colors. In addition, a flexible armored outer jacket may be used to protect the tubing where protection is necessary.

PREWIRED PACKAGED CONTROL ASSEMBLIES

Complete pre-engineered control assemblies have been used in the generation of steam in large industrial and power applications for many years. The trend toward packaged equipment, and the use of factorymade assemblies and sub-assemblies has now been extended and simplified for application to conventional, relatively small, low pressure steam boilers and to small air conditioning plants.

Formerly, for such a small plant, it was necessary to specify a number of individual relays, controllers, safeties, disconnects, etc., each to be individually mounted and wired in the field. In recent years, it has been our experience that this complex of controls, when connected in the field, would invariably be wired up incor-

The small, low pressure boiler plant in a factory assembled, wired and tested package includes all the necessary breakers, relays, alarms, safeties, timers, gauges, and similar control and recording elements. The only wiring required in the field is that between the terminal strip and the actuating and operating devices.

One result of the development and increased acceptance of electric and electronic type of controllers is that the engineer must become familiar

with electrical components and circuitry, and the requirements of the National Electric Code, as well as with boiler, furnace, and combustion technology and the rest.

CONCEALMENT OF THERMOSTATS

What can be done if, for esthetic reasons, the architect would like to make the thermostat as unobtrusive as possible? He might conceal it as in one installation I saw where a carefully selected oil painting was mounted over a thermostat.

It is not necessary to go to this extreme, however, since there are several other approaches:

1. One way out is to eliminate a thermostat from the interior altogether. It may be possible to locate the "room" thermostat nearby in the return duct, or possibly nearby in a branch return duct in the machine room, or at the air conditioning fan. A word of caution: the best place for a thermostat usually is in the room to be controlled. Remote location of thermostats must be carefully engineered, otherwise awkward control problems can result.

2. A second possibility is to have the engineer give thought during the engineering and design period to the decorative effect of the thermostat. With this in mind, our firm has designed recessed thermostat installations with the thermostat located behind a flush decorative wall plate. A concealed recessed air passage permits convection of room air over the thermostat. This requires considerable technical and artistic skill, and complete cooperation between interior designer and air conditioning engineer; it also can cause certain engineering complications. However, it can be done.

Of course, there have been available recessed instruments for use in vandal-proof installation in mental institutions, but these are still somewhat too awkward and expensive for the average installation.

3. A third possible technique is to aspirate air with a small fan through a sampling tube in order to permit locating the thermostat remotely. It is difficult at best to find an ideal "average" sensitive location for a thermostat in a room, where it will not be affected by sun, draft or supply air outlets or radiators. Aspirating room air through a sampling tube permits the thermostat to be located remotely, in a closet, behind a coat rack, or in any convenient location. Small tube-axial type fans such as are used for cooling of electronic equipment assist in making this method feasible.

CONTROL CENTERS

A touch of glamour as well as increased utility for heating and air conditioning resulted from the development of data control centers. From such centers, overall temperature readings can be taken and adjustments made in the settings of operating devices, thermostats, etc., located at remote points in the building.

Control centers are not new in principle; remote reading multipoint thermometers and centralized gauge boards have been in existence since the very earliest days of instrumentation. However, the addition of a brightly colored, em-bossed diagrammatic layout of the air conditioning and ventilating systems for a building, with start-stop switchs, pilot lights to indicate onoff operation, and temperature control and adjustment devices, all located in one well-lighted and brightly colored graphic display panel, have added a touch of Madison Avenue salesmanship and eye appeal to this type of equipment.

CONTROL

IN HIGH VELOCITY SYSTEMS

The advent of high velocity, high pressure air conditioning systems has brought about a series of interesting innovations and new techniques. Among these are mixing-attenuating boxes which reduce the high pressure in the main ducts to more conventional pressures, so that the air may be introduced into the room at conventional low velocities. Mixing valves of various sorts mix warm and chilled air in controlled proportions.

Various techniques of applying high velocity supply air include single temperature trunk supply ducts, with local reheat or local cooling coils; or dual duct systems. Extreme caution is necessary in the design of any system using this type of equipment, to make certain that the volume of air supply remains constant over the entire controlled temperature range.

In early installations, constant air volume was achieved by means of static pressure regulators which controlled large air dampers in the trunk ducts or branch mains. This was not too effective; much difficulty was encountered in setting and adjusting such systems.

A more refined approach, which will likely become the accepted method of air quantity control, is to provide local constant volume regulation at each individual outlet, in contrast to the previous technique of central or bulk air volume control.

Recording



Remote Pneumatic Thermometer



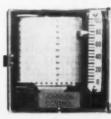
Pneumatic Recording Temperature Controller



Remote Indicating



Insertion Thermometer

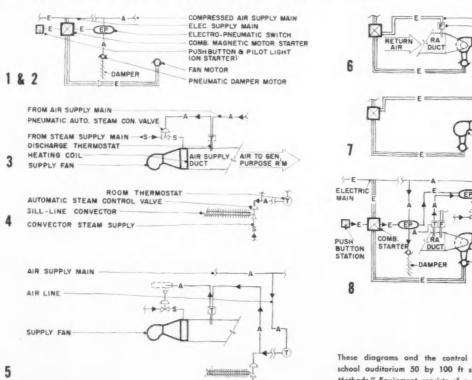


Multipoint Recording Thermometer

Automatic Control Sequence In A School Auditorium

	THE SPECIFICATION THE	EQUIPMENT, CONTROLLING AND CONTR	OLLED REMARKS	
1	HV-unit shall be started manually, from a surface mounted combination magnetic starter with push buttons and pilot light in cover, located on wall belaw unit.	Combination magnetic motor starter and push button station; the fan motor.	This is electric control wiring, and not strictly temperature control work. It is noted for information and coordination between the Electrical Sub-Contractor and the temperature controls Sub-Contractor.	
2	On HV-unit startup, the minimum outside air damper shall open to admit 25% outside air.	Electro-pneumatic switch, wired into load side of motor power wiring; pneumatic damper motor.	A more common, but somewhat more com- plex scheme includes modulating outdoor dampers, from a minimum of 25% up to 100% outdoor air.	
3	On HV-unit startup, the heating coil shall modulate open to maintain a minimum air discharge temperature of 60 deg. F.	Discharge thermostat in supply air; pneumatically operated steam valve to steam coil.	A room with much glass and sun exposure will require cooling through much of the year. In such case the low air supply limit should be set lower to permit cooling with supply air in suitable season.	
4	On a fall in temperature, the steam valves to the sill-line convectors shall modulate open under control of the ruom thermostat.	Room thermostat. Pneumatic steam valves to sill-line convectors.		
5	When the sill-line convector valves are full open, if the room temperature falls, the steam supply valve to the HV-unit steam coil shall modulate open.	Room thermostat (resets discharge thermo- stat). Steam supply valve to steam coil.		
6	A manual reset electric firestat located in airstream in return duct to fan shall stop fan in case of fire. Set for 120 deg. F.	Electric return air thermostat; pneumo- Electric switch in motor starter control cir- cuit wiring.	A magnetic motor starter is necessary to accomplish this. Note that these are safety controls, rather than "comfort" controls. Note the overlap between "comfort" controls, "safety" controls, and the "motor" controls.	
7	A manual reset electric freezestat located in airstream in fan discharge shall stop fan to prevent freeze-up of steam coil. Set at 50 deg. F.	Same as (δ) above.		
8	When the HV-unit is stopped, the outside air damper shall close. A thermostat bulb located in the intake plenum ahead of the fan shall modulate open the steam coil valve to maintain a minimum plenum tem- perature of 50 deg. F.	Same as (2) above. Plus thermostat lo- cated in air intake plenum, plus electro- pneumatic relay.	Outside air will occasionally leak past closed outside air dampers into the intake plenum, and may freeze the heating coil when the system is off. Again, this is a safety control rather than a comfort control.	

NOTE: All thermostats and valves are pneumatic, unless noted or specified otherwise.



These diagrams and the control specification are for the small school auditorium 50 by 100 ft shown previously under "Control Methods." Equipment consists of a 4000 cfm heating-ventilating unit and 100 ft of sill-line convectors, together having 200,000 Btu input

ELECTRIC LINE

SUPPLY FAN

AUTO. ST'M VAL.

SUP FAN

AUTO. ST'M VAL

CONVECTOR

ELECTRIC FIRESTAT

ELECTRIC FREEZESTAT

SUPPLY FAN

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General Specification Items

In addition to the specification for a particular control scheme, there are general prefatory paragraphs which apply to the entire system. Thus in addition to the individual control sequences for the various spaces, the complete specification would read as

It is of interest to note a problem that must be taken into account in the consulting engineers specifications, in that control work is performed by no less than four subcontractors on any job. By custom of the trades, dampers are furnished by the controls supplier but installed by the sheet metal contractor; automatic valves are installed under the heating piping work, pneumatic tubing is done by a tube fitter in the employ of the controls manufacturer; and electrical work is performed under the aegis of the electrical trade.

GENERAL ITEMS

1. Furnish and install all labor, materials, equipment, and services required for a complete system of temperature controls as shown on the Drawings and as specified.

2. All existing control equipment and pneumatic piping in existing building which is reused or moved shall be completely overhauled, put into first class condition, and shall be subject to the same guarantee as the new equipment. 3. Control equipment shall be pneumatically operated, except as specified otherwise, as manu-

factured by "A," "B" or "C" Company. 4. The control system shall be complete, including all necessary thermostats, relays, manual switches, controllers, control valves, dampers, damper motors, air compressors, moisture eliminators, piping, wiring and all accessories necessary to perform the intended operations as specified. 5. All piping and sheet metal work shall be done by the Heating and Air Conditioning Sub-Contractor, All pneumatic control piping and pneumatic equipment shall be installed by the manufacturer of the automatic controls. All automatic control work, however, shall be supervised by the automatic controls manufacturer, who shall furnish the necessary skilled supervisors as required, during the life of the job.

6. Furnish and install automatic louver dampers at all outside air intakes, at relief louvers and at all fan and gravity discharges to outdoors, and at all recirculating returns, except as noted otherwise on the drawings.

7. At roof type exhaust fans, omit automatic dampers, and furnish factory installed aluminum self-acting gravity dampers, with felted edges for tight closing.

8. All motors, controllers, relays and operating mechanisms shall be so located as to be readily accessible for maintenance. Furnish and install access doors for this purpose.

9. Under all schemes of control, starting the fan shall activate all automatic controls for any one system. When fan is not operating, all respective outside air intake and exhaust dampers shall remain closed.

10. Each supply and exhaust fan shall have a high limit manual reset cutout controller on the suction side of fan, to stop fan in case of fire. Set for 120 deg. F. Company "D" or other approved manufacturer.

11. Each supply fan shall have a manual reset low limit cutout controller on the discharge side of fan, to stop fan to prevent freeze-up of coils. Set for 50 deg. F.

12. Furnish and install two air compressors, each with a compressor receiver, of sufficient size and capacity so that either compressor will be able to furnish the required air to the control system when operating less than one-third of the time. 13. Each unit shall be complete with an electric motor of 1/2 hp, with thermal overload protection, combination magnetic starter, factory wired pressure switches, pressure reducing valves, relief valve, air gauges, air intake filter, air intake muffler, refilters, ASME approved tank, all factory mounted integrally on a substantial steel base, and painted one coat shop paint. 14. Furnish and install a compressed air supply line to the centrifugal compressor suction damper, and to the damper controller.

15. The entire pneumatic piping system shall be tested by placing it under 30 psi pressure for 24 hours, with no appreciable drop on the pressure gauge.

16. All-steam heating coil control valves shall be 21/2 in. or smaller. Where a larger capacity is required, furnish and install two valves in parallel, arranged to operate in sequence.

17. All modulating dampers shall be of the opposed-blade louver type; all two-position dampers shall be parallel-blade type, Dampers shall have black enamel finish, and shall be equipped with brass bearings or with ball bearings. Blades shall be not more than 10 inches in width, not less than #16 gauge, and frame shall be of welded channel sections.

18. All pneumatically operated valves and damper motors in excess of 20 square feet in face area used in sequence operations shall be equipped with positive positioning devices.

19. All starters, pilot lights, 2-position and modulating controllers, and all accessory equipment, located in any one machine room, shall be mounted on a #16 gauge steel board, securely supported to floor, ceiling, and wall by means of angle iron supports. Paint panel and supports with one shop coat of gray paint.

20. Thermostats, unless specified otherwise, shall have concealed adjustment, with red-reading thermometer in cover.

21. Refer to the following paragraphs under this Section of the Specifications for related equipment and work:

g. Access Doors

b. Motors; Controllers; Disconnects

c. Nameplates; Identification Tags; Charts

d. Sheet metal work

22. Submit wiring and piping diagrams, electric ladder diagrams, control arrangements, and data and dimension sheets for approval prior to any installation. Equipment will not be accepted without identifying nameplates or stencils.

23. U. L. Approval. All electric components of the temperature control system shall have Underwriters' Laboratories approval.



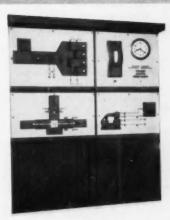
Combinations



Outdoor Compensated Electronic Heating Controller







Control Center

STRUCTURAL USES OF WELDED STEEL TUBING

In architectural circles, tubular steel structures have for many years been thought of principally in terms of the dramatic space-frame constructions—bridges, towers, exhibition buildings, industrial buildings, et al—so common abroad. With the exception of the pipe column, which can surely be no mystery to any designer, structural uses here have been limited to the quasi-architecture of radio and TV towers, and oil-well drilling masts.

However the relatively recent development and subsequent wide availability of welded steel tubing has meant an increased use of tubular members, particularly since the curtain wall has become firmly entrenched in the architectural vocabulary. Of late, welded steel tubing has been widely used in curtain wall constructions ranging from simple framing for window wall sections on the one hand, to complete load-bearing curtain wall systems (if that is not a contradiction in terms) on the other hand.

This is due to several factors, but perhaps foremost among them is the fact that square and rectangular tubing combines the structural efficiency of the hollow, thin-walled section with a trimness of line that integrates well with other architectural elements in a wall section (windows, mullions, partitions) and needs no additional trim and no finish except, if desired, paint. It lends itself to prefabrication and hence to rapid site assembly. It greatly simplifies detailing, particularly of connections. It can be formed to virtually any desired shape. And it competes economically with other materials commonly used for structural supports, curtain wall framing and even mullions. (Details of such applications are given on pages 195, 197, and 199.) Since these qualities will doubtless be used in more, and more varied, applications as architects and engineers become more familiar with welded steel tubing, the following paragraphs outline those specific properties of the material that have particular bearing on its present (and possible) architectural uses.

HOW THE TUBING IS FORMED

Regardless of the final configuration desired, all welded steel tubing starts out as a coil of flat rolled steel which is fed continuously from the coil to a series of forming rolls that bend the flat stock first into a horseshoe and then into a round tube.

In the case of carbon steels, the formed tubing continues into pressure rolls where it contacts electrodes which conduct current across the butted joint. A welding temperature is produced by the metal's resistance to the flow of current, and a fusion weld of the edges is completed without the introduction of additional metal.

Stainless steel tube leaving the forming rolls also enters pressure rolls, but it then moves under a tungsten electrode which is totally shielded by an inert gas atmosphere. Although an arc weld is made rather then the electric resistance weld used for carbon steels, no welding rod or additional metal is used, so that in both cases the result is a continuous tube with a weld of the same composition as the tube itself.

ITS INHERENT ADVANTAGES

Since tolerances on the flat rolled products used in the manufacture of welded steel tubing are held within extremely close limits, the finished tube has uniform wall thickness and equal strength throughout. (Latent imperfections can be easily detected prior to forming, when both sides of the steel are open to visual inspection.) This, and the roll forming process, insure that the inside and outside diameters of welded steel tubing are, for all practical purposes, concentric about the central axis. This eliminates the need for machine truing and permits the

use of a minimum wall thickness in design, with resultant savings in fabricating costs and weight.

Welded steel tubing can be subjected to all popular fabricating operations, during which the weld area can be treated the same as any other section. Bending is by far the most common form of fabrication, but flaring, flanging, tapering, flattening, beading, upsetting, reducing and even punching are possible as well.

Similar latitude can be used in selecting joining methods. Welding —by any of the conventional processes—is of course the most obvious method, the particular process being determined by the joint design and type of tubing. However, mechanical methods are often used to join welded steel tubes to other forms and materials, including wood.

SHAPES AND FINISHES

Once the round tube has been formed and welded, it can easily be drawn or rolled to a more convenient configuration. Although they cost more than the round shape, square and rectangular tubes are perhaps used more often because the convenience of connecting to flat rather than curved sides offsets the higher cost of the tube stock itself. Special shapes (ovals, hexagons and so forth) are usually made only when mill order runs can be utilized.

The commonly-used carbon steel tubing is suitable for such finishing processes as painting, porcelain enameling and plating; for such metallic finishes as aluminizing and galvanizing; and for plastic coating. Stainless steel tubing, which is often used in spite of its higher cost because it eliminates the need for exterior trim, comes in standard mill finishes—polished, burnished, white pickle, bright anneal and others. In either case, the inside of the tubing can be left exposed.

continued on page 195

Light Gauge Sheet Steel Performs Like Heavy Beams in New Roof System

Although it is about 25 per cent lighter than conventional truss roofs, the Dubl-Panl roof, a new roof-ceiling construction made up entirely of 13to 20-gauge sheet steel, can be used without intermediate supports for spans from 40 to 1000 ft. It has only two basic components: channelgrooved panels which, when bolted together, form the upper and lower stressed chords of the roof and also serve as roof and ceiling respectively; and hat-shaped diagonal struts which, when set in rows 41-in. (panel width) apart, transfer vertical loads into axial stresses in the panel-chords. The lateral load is then transferred to walls, so there is no need for lateral bracing.

The precise gauge, shape, spacing and length of the struts are of course determined by the specific span and load requirements, with practical span limitations estimated at 40 to 350 ft for flat roofs, up to 1000 ft for arched roofs, and up to 250 ft for cantilever overhangs. The system can also be used to construct shear walls of virtually any height desired.

According to the manufacturer, a key factor in the development of the new roof system was the discovery that when the struts were bolted together at the intersections, the tension struts prevented lateral deflection of the compression struts, thus making it possible to use 1/r ratios far in excess of those normally used for compression members. The efficiency of the Dubl-Panl roof is further increased by the elimination of bracing, purlins, sheathing, built-up roofing and other miscellaneous members whose weight would otherwise have to be carried by the system. In recent tests, a 200-ft section (photo right) loaded to 60 psf (twice the design live load) deflected only 7% in. at mid-span. The expected deflection was over 12 in.

The *Dubl-Panl* roof system is also said to offer other advantages:

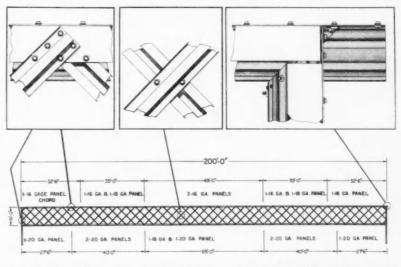
1) The galvanized or aluminized panels and struts give long, servicefree life without painting.

 Insulation, ducts, openings and other accessories are easily installed between the panel-chords before or after erection.

3) Semi-skilled labor and simple erection methods can be used.

 Less dead load distributed more evenly may permit reduction in wall and footing materials.

5) Channel-ridged panel-chords have inherent acoustical value which can be augmented by insulation. Behlen Mfg. Co., Inc., Columbus, Neb.





Automated Guard System Gives Sure Plant Security

By centrally-locating all building or plant security functions so that they can be supervised by a single guard, the new automated Electronic Security System promises to provide better plant protection at less cost. The basic "building block" of the system is a compact control console which contains a two-way intercommunication unit, a closed-circuit television screen, and a number of push button switches that operate gates and security equipment and light up to serve as visual alarms. Surrounding it are sub-system panels that link to the main console a variety of remotely-located detection devices, any or all of which may be incorporated in any given installation. Some of these devices-fire and smoke detector heads, magnetic window and gate switches, TV cameras at entrances, and holdup alarm switches-are fairly conventional. Others, like the electronic noise and motion detectors and a capacitance-type electronic fence that "really works," are new developments. In all cases of alarm, the guard at the console is warned both visually and audially, and is told the location and nature (fire, intrusion, etc.) of the emergency by indicating lights on the sub-system panels. Minneapolis-Honeywell Regulator Co., 2753 Fourth Ave. South, Minneapolis 8, Minn.

more products on page 212



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DORMITORY FURNITURE PLANNING



DORMITORY FURNITURE PLANNING. A Manual for Architects and Residence Hall Administrators, provides a detailed guide for planning dormitory rooms and suites "from the furniture up." Separate sections cover minimum furniture requirements in general and the special considerations that affect them; recommended design and construction features; the relative advantages of wood and metal furniture, built-in and freestanding; and suggested specifications for factory-built wood furniture. Of special interest is a collection of perspectives, plans and details of typical room layouts. 40 pp. \$3. Sligh Lowry Contract Furniture Co., 174 E. 11th St., Holland, Mich.

Stem Architectural Veneers

Lists some of the more distinctive woods for architectural veneer paneling, giving information on color, size, source, availability and approximate cost, with side notes on special characteristics. Chester B. Stem, Inc., Grant Line Rd., New Albany, Ind.

Inlock Neoprene Structural Gasket

(A.I.A. 17-J) Describes the architectural and cost advantages of the Inlock one-piece gasket, and gives test data, cross section information, installation procedure, architectural details and photos of installations, and specification data. Catalog 200, 28 pp. Wm. A. Reynolds & Co., Inc., 4500 Euclid Ave., Cleveland 3, Ohio or Inland Mfg. Div., General Motors Corp., Dayton, Ohio

Self-Policing Annunciator Systems

Discusses and gives basic engineering data on the operation and application of annunciator systems for various industrial uses. Catalog No. 659, 36 pp. Scam Instrument Corp., 1811 W. Irving Park Rd., Chicago 13, 111.

Heifetz Design Gallery

Catalogs, with photos, dimensional drawings and specifications, a complete line of ceiling pendant lighting fixtures featuring *Rotaflex* plastic diffuser globes. 18 pp. *The Heifetz Co., Clinton, Conn.*

Plaster Construction Systems

Four new booklets—"Membrane Fireproofing," "The Trussteel Stud Partition System," "The Two-Inch Solid Lath and Plaster Partition System," and "The Brace-Tite Lathing System for Suspended Ceilings"—show each plaster construction system via detailed photographs and drawings. United States Gypsum Co., Dept. 122, 300 W. Adams St., Chicago 6, Ill.*

Semimicro Chemistry Laboratory

types of student laboratory tables designed for the teaching of semimicro chemistry; a brief description of the semimicro chemistry method and its advantages; lists of semimicro apparatus and glassware required for student use; storage counter assemblies; and six floor plans for combination semimicro chemistryphysics laboratories. 24 pp. Kewaunee Mfg. Co., 5046 S. Center St., Adrian, Mich.

Roofing and Waterproofing

. . . On Concrete Shell Construction discusses the general and special requirements for roofing materials for concrete shells, and describes Addex Roof Shield specifications TS-1 and TS-2 for waterproofing and reflective waterproofing respectively. Addex Research, P.O. Box 3507, Cleveland 17, Ohio

Conductive Tile Factbook

Contains a folder on various types of ceramic tile recommended for hospital installations; a performance study of a specific installation; and specification information on impervious conductive ceramic mosaic floor tile. Form 228. Mosaic Tile Co., Zanesville, Ohio*

Store Planning Guide

Includes detail drawings, complete specifications, and photographs of actual installations of the *Vizusell* merchandising and display system. Catalog 450, 84 pp. *L. A. Darling Co., Dept. 450, Bronson, Mich.*

Heating Coils

Describes the construction and operation of Kennard/Nelson steam and hot water heating coils, with complete selection and engineering data, and specifications. Bulletin HC-102, 32 pp. American Air Filter Co., Inc., Dept. PD, 215 Central Ave., Louisville 8, Ky.

Recessed and Accent Lighting

Catalogs, with illustrations, complete dimensional drawings and accurately calibrated light curves, the Markstone line of recessed and accent lighting fixtures for residential and commercial applications. 20 pp. Markstone Mfg. Co., 1531 N. Kingsbury, Chicago 22, Ill.

Constants for Designing

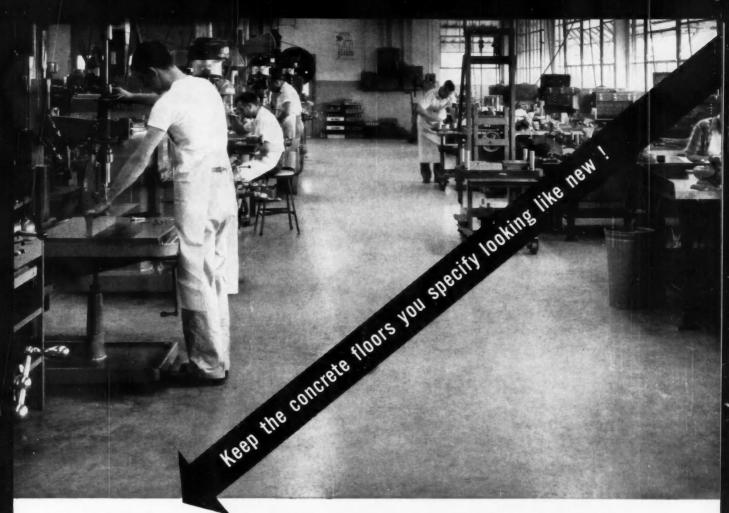
. . . Continuous Framing Using Cover Plates (A.I.A. 13-C-2) Two-part study (SSAW Nos. 150 and 151) presents a series of charts for determining stiffness factors, carry-over factors, and fixed-end moments for beams in which there are abrupt changes in the moment of inertia occurring when cover plates are welded to the flanges of an I-beam over part of its length. Reprinted from Bulletin 176 of the Iowa Engineering Experiment Station by Lincoln Electric Co., Cleveland 17, Ohio

Functional Drafting

Supplement No. 2 discusses six bases for reducing costs in drafting and design, with special emphasis on planning and equipping drafting rooms. 30 pp. Kuhlmann Straube Co., Ltd., P.O. Box 358, Oakville, Ont., Canada

*Additional product information in Sweet's Architectural File

more literature on page 240



HUNTINGTON CONCRETE SEAL

eliminates the problems of dusting, staining and blooming . . . assures proper curing!

Without waiting or etching, you can apply Huntington Concrete Seal as soon as the concrete sets. It slows drying and assures better curing.

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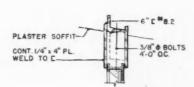


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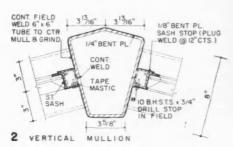
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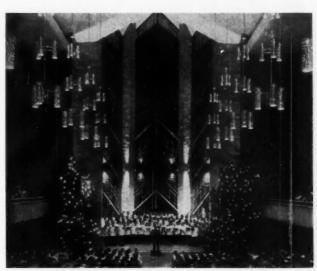
STRUCTURAL USES OF WELDED STEEL TUBING: DETAIL 1

Student Chapel, Valparaiso University, Ind. Architects: Charles Edward Stade & Associates; Associate Architects: M. Dolan & H. Anderson

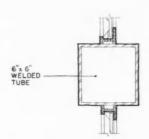


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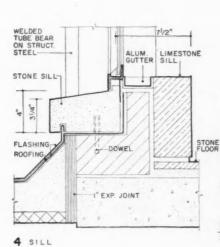


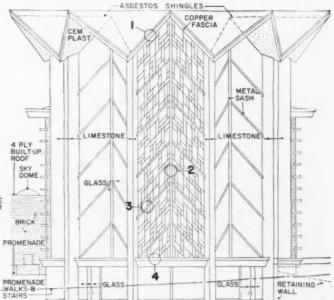


Between its radial limestone piers, the polygonal chancel of this student chapel is framed entirely of glazed steel sash set in mullions made of welded steel tubing, with the vertical central mullion in each bay inset slightly to form the apex of a shallow triangle. Welded steel tubing was chosen for the chancel window wall framing after alternate bids had been taken on both wood and stock lally columns. Although the lally columns came in under wood mullions, the architects found that welded steel tubing would give the desired appearance, permanence and strength at a still lower cost. Since it could be formed to any shape, the rectangular vertical mullions originally called for were modified to the slope-sided shape shown here in order to simplify the placing and joining of the diagonal mullions, which would otherwise have had to be double beveled at the ends that meet the center mullions. Although no molding was used, the small bent plates that join the sash to the mullions (see detail) gave a fully weathertight joint.



3 DIAGONAL MULLION







• The Theodore R. McKeldin Library is the latest of several large structures built on the University of Maryland campus by The George Hyman Construction Company. It clearly shows the results of good workmanship and good materials.

In commenting on the beautiful masonry walls of this library, Mr. J. A. Kopson, construction veteran of 50 years and superintendent on this job, had this to say about Lehigh Mortar Cement, "It has excellent strength, good color and its workability helps the masons do a good job."

This is typical of the comments made by users of Lehigh Mortar Cement the country over. So whether your next job is large or small, traditional or modern, you can approve Lehigh Mortar Cement with the assurance that it exceeds the most rigid ASTM and Federal specifications.

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Contractor: The George Hyman Construction Co.,
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Dealer: Hudson Supply & Equipment Co., Washington, D.C.

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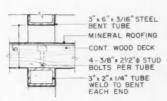
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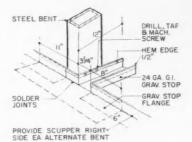
Rear view of Theodore R. McKeldin Library. The building has eight stories and basement. It is approximately 118×243 feet.

STRUCTURAL USES OF WELDED STEEL TUBING: DETAIL 2

Katz Drug Store, Overland Park, Kansas Architect-Engineers: Kivet & Myer & McCallum



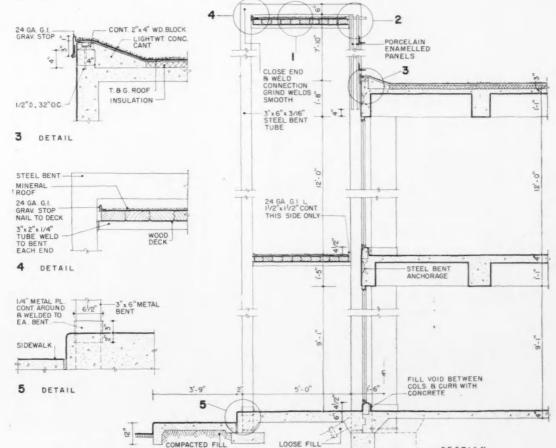
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2 DETAIL



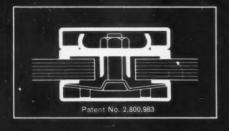
The two-plus story steel bents striding along the front of this Kansas drug emporium are both a major theme in the design of the building and an economical support system for the large expanse of glass that fronts the main sales areas. Rising about eight feet above roof level, they form a "parapet" from which decorative porcelain panels are hung; and they support the canopy that shelters the street floor arcade. But they also serve as framing for the glass wall. According to the architect, welded steel tubing was chosen for the bents because "there was no other material" that would have given the desired design pattern and economy of structure, as well as incombustible construction. Ease of erection also weighted the scales in favor of tube stock rather than channels welded to form a tube.



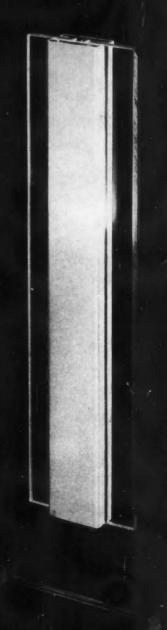
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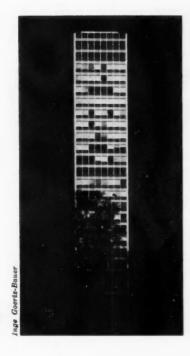
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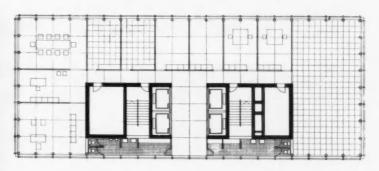
PITTSBURGH PLATE GLASS COMPANY

IN CANADA: CANADIAN PITTSBURGH INDUSTRIES LIMITED

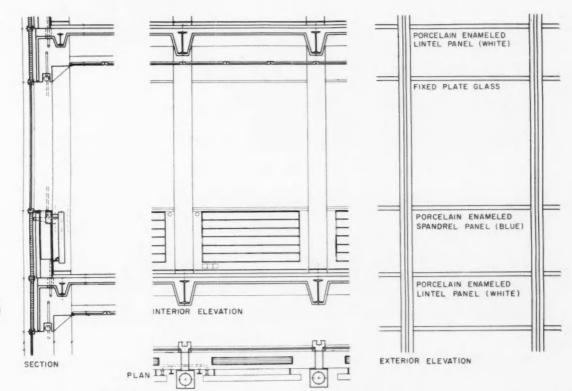
STRUCTURAL USES OF WELDED STEEL TUBING: DETAIL 3

Mannesmann Building Dusseldorf, West Germany Architect: Paul Schneider-Esleben; Engineer: Herberth Knothe





This 24-story building jutting skyward from the bank of the Rhine at Dusseldorf is the administrative headquarters of the Mannesmann AG, West Germany's largest producer of steel tubing. It is also believed to be, logically enough, the first skyscraper in which welded steel tubing is used for the exterior columns. Although much of the building's weight is carried by an interior core of reinforced concrete (see plan above), slender, &in. diameter round columns arranged on approximate &ft centers around the exterior wall support the perimeter loads of the floor beams and the curtain wall. The columns themselves are supported at first floor level, some 28 ft above the ground, by a perimeter box girder which transmits the loads from the superstructure to twelve socketed stanchions, also made of tubular steel. The curtain wall, which is hung outside the boxed columns as detailed below, consists of anodized aluminum framing members, fixed plate glass, and spandrel and lintel panels of steel plate porcelain enameled in white and blue.

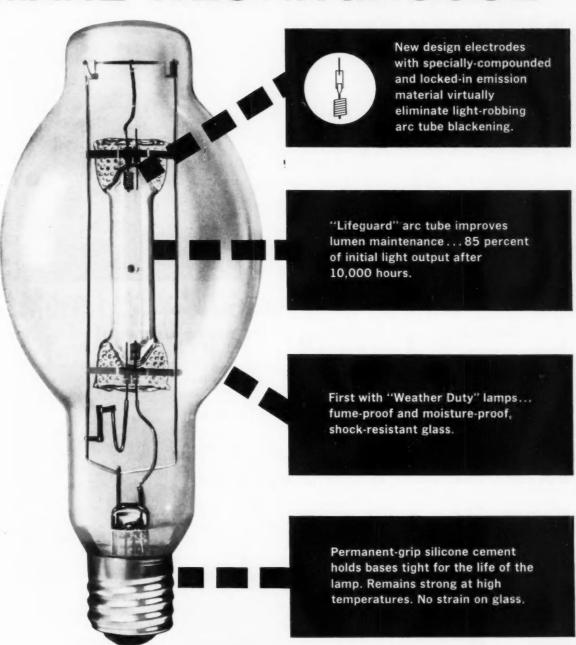


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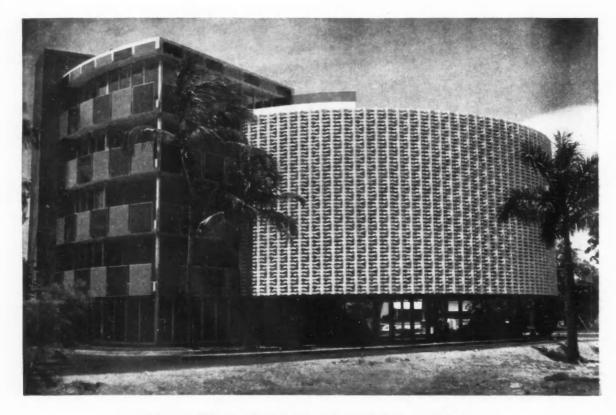
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Above: Extraordinary sound insulation was obtained through the use of Penmetal hollow studs and Hush Clips. Left: Expansion jointused for ground-floor ceilings.



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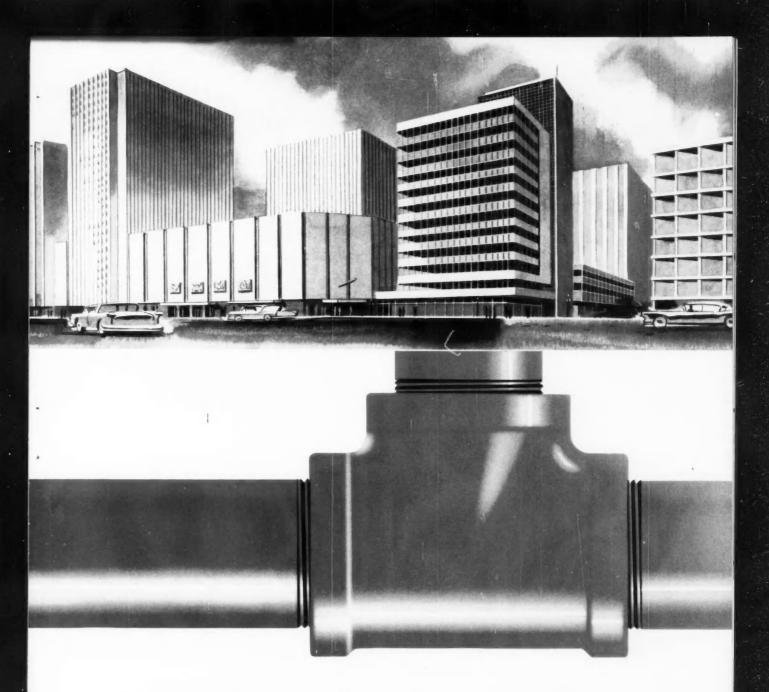
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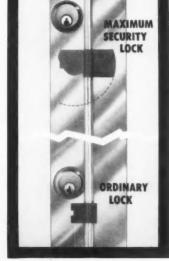
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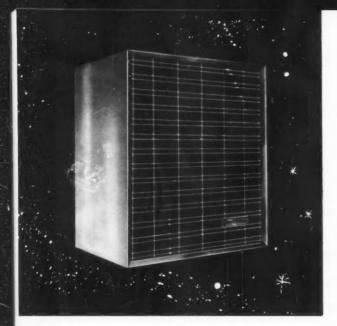
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continued from page 191

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more products on page 221

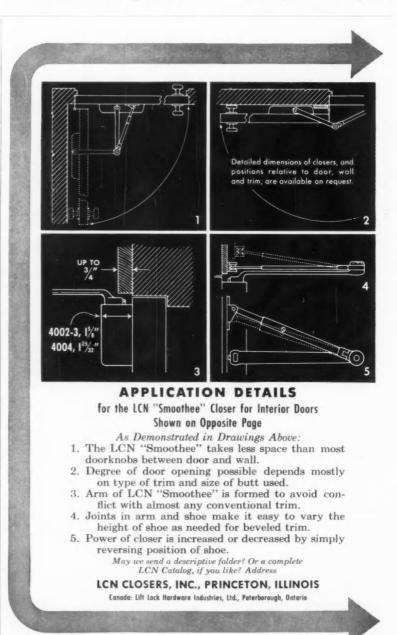


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Perkins & Will Architects-Engineers





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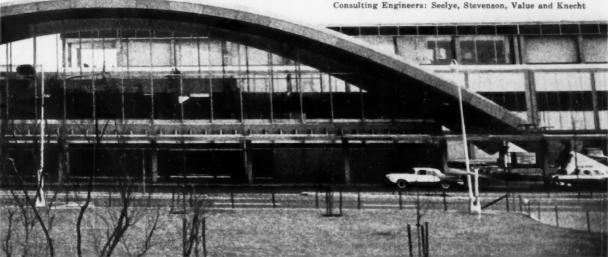
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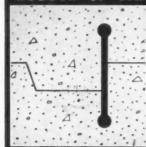
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Complex structures of this tremendous magnitude—where quality and dependability cannot be sacrificed—provide dramatic proof of the time-won confidence that Frank Adam electrical equipment enjoys wherever it's installed.



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Mahon METAL CURTAIN WALLS



Serving the Construction Industry Through Fabrication of Structural Steel, Steel Plate Components, and Building Products

in Bright Metal or Colored Porcelain **Produce Clean, Attractive Exteriors!**

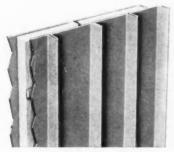
Mahon Walls can be Erected up to 60 Ft. in Height without a

Horizontal Joint . . . Vertical Joints are Invisible

ALUMINUM or STAINLESS GALVANIZED or PAINTED STEEL



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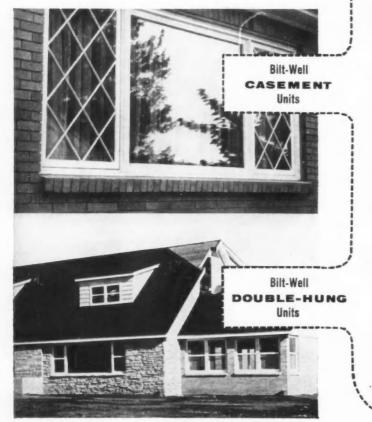
☆ For INFORMATION See SWEET'S FILES or Write for Catalogues

THE R. C. MAHON COMPANY . Detroit 34, Michigan Sales-Engineering Offices in Detroit, New York, Chicago, Los Angeles and

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another first from Bilt-Well by Caradco

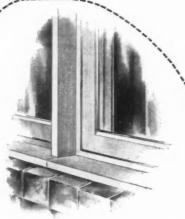


Unitized Construction keeps BILT-WELL Window costs low!

This unique patented joining method results in a saving over the old continuous head and sill method—in a stronger assembly—in a permanent watertight joint—in greater latitude of fenestration.

Specify the newly engineered BILT-WELL WINDOW UNITS

CARADCO, Inc., Dubuque, Iowa



Only BILT-WELL
Casements, and
Double-hung
window Units have
this exclusive
unitized sill!

This patented feature permits an unlimited number of single units to be joined in multiple horizontal groupings.



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There's more to offer with WOOD

WOOD WORK by Caradco

Specify the BILT-WELL Line by CARADCO

Super double-hung windows



Super-hold

with ingenious sash-holding device for budget homes.



Super-lift

with fingertip operation for medium priced homes.



Super-therm

with double insulating glass for custom built homes.

Casement Windows



Sleek, trim, double-weatherstripped casements with concealed hinges and hardware. Unitized sill permits side-byside installation in long ribbons.

Awning Windows



New releasable hinge permits removal of sash for easy cleaning. Lever, jointed bar, rigid bar ar gear operator available. Use these windows as casements, awning, hopper or fixed sash.

Kitchen Cabinets



Beautiful, streamlined cabinets of Ponderosa Pine, all water repellent treated for dimensional stability, with pine or birch doors and drawer fronts. Cabinets come in 3" modules to fit any size kitchen. Wide choice of accessories.

Storage Walls

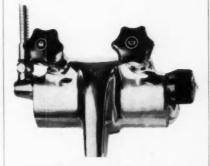


Economical and practical arrangements of door and drawer units form complete storage walls. Easy to install in out-of-the-way corners for additional storage, too.

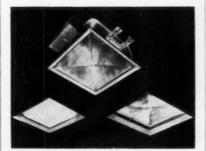
BILT-WELL Products by CARADCO, INC.

Dubuque, Iowa

Product Reports



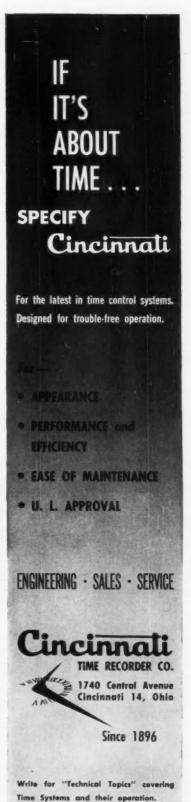
Combination Bath and Shower Unit A new bath and shower combination features an exposed flexible shower arm that remains fixed for showering, but slides out of its swivel socket for use as a hand spray or for shampooing. The exposed arm also eliminates built-in piping, and opening of the wall when repairs are necessary. The two faucets shown on the unit operate independently, one controlling the flow to the tub, the other to the shower. Both are thermostatic mixing valves which automatically maintain the water temperature (35 to 180 degrees F) set on the control dial, thus eliminating wastage of hot water, manual regulation of the taps, and all danger of scalding. Simix Co., 45 West 81st St., New York 24, N. Y.

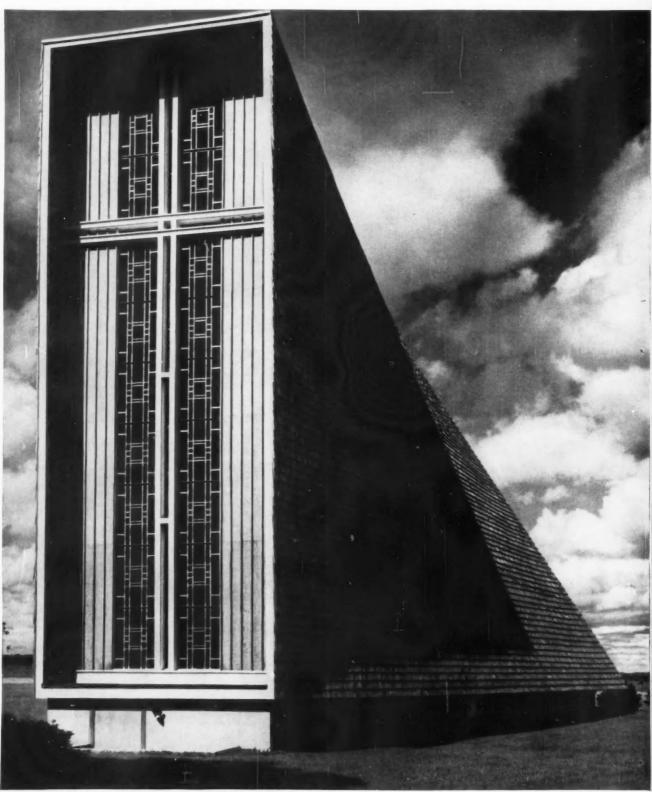


Recessed Incandescent Lens Boxes

The Uni-Frame line of recessed incandescent lens boxes now includes a 10-in. box (100 to 150w lamps) in addition to the original 12-in. (200 to 300w lamps) model. Both can be fitted with either a lens or a glass diffusing bowl, and with several types of outer frames and optional splay trims to make a total of 24 possible combinations. Of rigid, seamless construction, the Uni-Frame requires no plaster frame and can even be installed in concrete ceilings. A one-piece aluminum reflector adds to its lighting efficiency. Day-Brite Lighting, Inc., 6260 N. Broadway, St. Louis 51, Mo.

more products on page 228





St. Luke's Church, Camilus, (near Syracuse), New York—a beautiful example of advanced wood technology put to use in church architecture. Here laminated hyperbolic parabaloid construction made possible this dramatic application of the ancient Christian symbol of the triangle. Sargent, Webster, Crenshaw and Folley, architects.

Design should never be the servant of material-

for new answers...look to WOOD

What matters creativity—unless materials at hand can translate the blueprint into reality? Wood can modestly boast of its versatility, of its close association through the centuries with the highest aspirations of architects and craftsmen alike. It is no less true today! Thanks to the new technology of wood, laminated beams and other products undreamed-of ten years ago are making way for a new era of structural sophistication. Add to this the new work in wood preservatives, the new opportunities in exterior and interior colors, finishes and textures—you have what

amounts to a *new* material whose only design limit is your imagination! For more information on designing with wood, write to:

NATIONAL LUMBER MANUFACTURERS ASSOCIATION
Wood Information Center, 1319 18th St., N.W., Washington 6, D.C.

for freedom of design, look to WOO





Architect Percival Goodman wanted a dramatic entrance screen for Temple Beth El in Providence, R. I. Egg-crate wood wall has insets of stained glass, provides rich shadow patterns and luminous color.



When design calls for unobtrusive elegance, wood is the natural choice. Here neutral hardwood paneling creates a handsome backdrop for objects of art in a private home. Philip C. Johnson, architect.

Wood handles a double function in the design of this airy, weekend house. Imaginative hung construction was used to take advantage of wood's structural strength, and at the same time create a strong design pattern that gives distinction to a limited-budget project. George Matsumoto, architect.





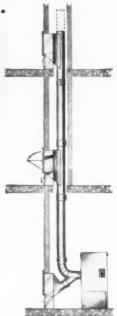


Your hospital disposal system is not complete ... unless it handles soiled linen, bulk rubbish and dust Hospitals today recognize the many advantages of Wilkinson centralized disposal for the efficient handling of soiled linen and bulk rubbish.

Of equal importance, for a sanitary operation, is the elimination of dust. Wilkinson Dust Chutes, centrally located on each floor, provide the most efficient and sanitary method of cleaning dry dust mops, dust rags, brushes, etc. Equipped with a cyclone-filter type dust collector plus a fiber glass filter, Wilkinson Dust Chutes remove dust down to .2 microns.

Many other proven features make Wilkinson Dust Chutes the best you can install.

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619 East Tailmadge Ave., Akron 10, Ohio





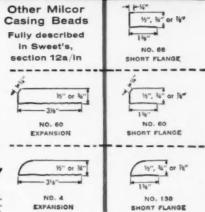
Furnishes a clean, uniform separation between acoustical and sanded plasters — and between plaster and non-plaster surfaces. Enables the plasterer to provide the neat plaster terminal your plans call for, without improvising makeshift grounds. Integral expansion wing is easy to attach to metal lath or any other construction.

Catalog 202 shows all the Milcor Casing Beads. Write for your copy.



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Notice how desks are placed close to Thermopane windows.

Exterior view of high school at Holy Ghost Fathers Mission Seminary. This 16-classroom unit cost \$16.46 per sq. ft. but construction cost included a heating plant designed to serve adjacent seminary building and chapel.



St. John the Baptist Elementary School and Convent Building, Ypsilanti, Mich. Completed in 1953. Construction cost \$10.68 per sq. ft. even with Thermopane in all windows.



Our Lady of Sorrows High School, Farmington, Mich., has Thermopane throughout. This 20-classroom unit was completed in 1956 at a cost of \$12.66 per sq. ft.

Thermopane is a necessity... in low-cost schools!



Take the school buildings designed by Architect Charles Dominic Hannan. Twenty-five of them have large window areas glazed 100% with *Thermopane* insulating glass.

Construction cost for these schools averaged less than \$11.62 per sq. ft.

"Insulating glass has many advantages," says Architect Hannan. "It permits us to open up classroom walls to the view without discomfort to students . . . to flood classrooms with natural daylight . . . and to muffle distracting outside noise."

ECONOMIC NECESSITY

"Some people consider double-glazing a luxury. I don't. It's an economic necessity when you figure the fuel it saves. Take the St. John the Baptist Elementary School. It has eight classrooms. We figure that the *Thermopane* windows save 20,043,000 B.T.U. per classroom per season.

"If you show clients figures like that, they're happy to go along with you. When we were designing the high school for Our Lady of Sorrows Parish, heat savings computed for *Thermopane* were so impressive our client was glad to pay \$3,500 extra for it."

MORE USABLE FLOOR SPACE

"Here's another thing. Classroom population is growing so fast, we can't keep up with it. The classrooms we designed to accommodate 35 pupils are now holding as many as 50. That means shoving rows of desks next to the windows where students would feel chilly if it weren't for the double-glazing.

"I started using insulating glass in schools in 1946. I've been using it ever since — a total of about 7,500 units. In all those years, less than a dozen units have had to be replaced. School

children aren't as rough on glass as some people think they are."

Charles Hannan practices what he preaches. The windows in his own home, and in his offices, are glazed with *Thermopane*.

For technical information on *Thermopane*, consult Sweet's Architectural File 26-A, or call your L·O·F Distributor or Dealer (listed under "Glass" in the Yellow Pages). Or write to Libbey Owens Ford Glass Co., 608 Madison Avenue, Toledo 3, Ohio.



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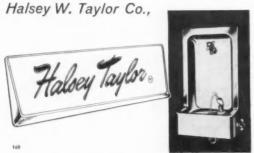


LIBBEY-OWENS-FORD TOLEDO 3, OHIO





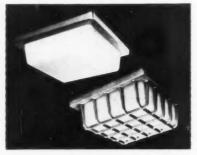
ROMANCE AT THE COOLER? Could be..we don't know about that. All we do know is that all across the country folks are in love with Halsey Taylor fountains. And rightly so, because whether it's a stainless steel fountain or a new Wall-Mount cooler, architects, plumbing contractors and building owners know if it's Taylor-made, it's dependable and health-safe! The Halsey W. Taylor Co.. Warren, Ohio



It's only natural to select Halsey Taylor stainless steel fountains to harmonize with modern interiors, in banks, office buildings and commercial structures.

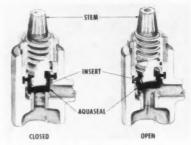
ASK FOR LATEST CATALOG, OR SEE SWEET'S OR THE YELLOW PAGES

Product Reports



Vaportight Lighting Fixture

The new 43-88 line of surface mounted lighting fixtures for indoor and outdoor use features cast aluminum construction with an anodized finish for permanence against corrosive elements. The units come with an impact-resisting carrara glass diffuser gasketed in a hinged trim for easy relamping and maintenance, and are supplied with a cast aluminum junction box, gasket and screws for a vaportight seal at the conduit entry. For added protection against abnormal abuse, they can also be had with an integral guard, as shown above. McPhilben Lighting, Inc., 1329 Willoughby Ave., Brooklyn 37, N. Y.



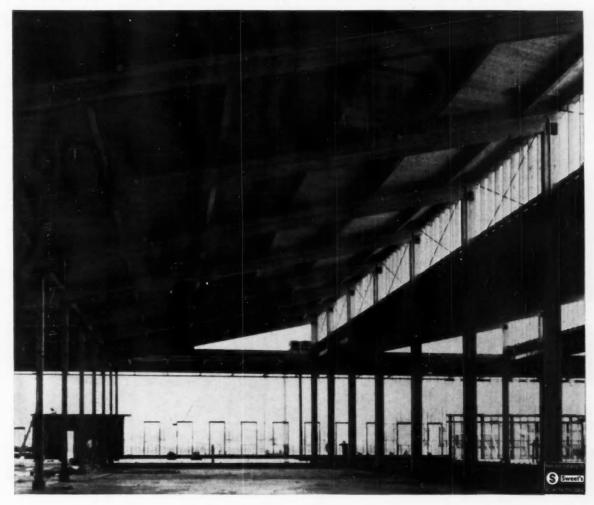
Washerless, Dripless Faucet

The new Aquaseal faucet valve replaces the conventional seat washer with a diaphragm principle of water control. All moving parts are outside the flow area, and there is no seat washer wear, a common cause of leaks and dripping in ordinary fittings. Instead, a stainless steel insert in the valve acts as a bearing plate against which the stem operates. Rotation of the stem releases tension in the valve, which is then opened by the normal water pressure. For closure, the non-rotating Aquaseal is merely compressed against the seat, eliminating all friction. Another advantage of the design is that foreign particles are easily dislodged by the water flow when the valve is opened. American-Standard Plumbing Heating Div., 40 W. 40th St., New York 18, N. Y.

Manufacturing plant of National Can Company, Vancouver, Washington. Engineers: Western Engineers Consultants, Eugene, Oregon, and John Laurila, Jr., Vancouver. Contractor: Port of Vancouver.

Space provided: manufacturing section of 250'x280'; warehouse of 250'x220'; covered truck loading dock 75'x220'; covered railroad loading dock 20'x500'. Structural framing: glulam beam-and-column bents for manufacturing section, offices and loading docks; glulam timber trusses of 125-foot span for warehouse section. Exterior walls: ribbed aluminum siding over timber framing. Interior walls: ply-

wood in manufacturing and warehouse sections; plaster board in offices. Floors: asphalt tile in offices; remainder concrete. Lighting: incandescent. Heating: gas-fired unit heaters. Roof: built-up felt over finger jointed timber decking. Sprinklering; full sprinklering in manufacturing and warehouse sections. Area: 151,000 square feet under roof. Cost: \$1.58 a square foot of covered area.



Glulam timber beam-and-column bents
provide 40' x 250' clear span bays with roof of sawtooth contour
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TALL...BRIGHT AND HANDSOME

Chicago's smart, new Executive House Hotel boasts all-stainless exterior

There will never be anything dark about this new Chicago hotel. Architects chose stainless steel for the entire exterior. Supplied in part by Republic Steel, the stainless—Type 302—was fabricated by Haskelite Manufacturing Corporation, Grand Rapids, Michigan.

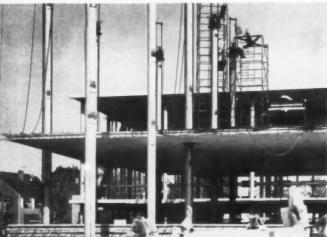
Stainless is the bright solution to long-range economy requirements. It assures proven strength and durability . . . greater resistance to corrosion, scuffs, scratches, and dents. Hard, lustrous finish will not bleed or discolor with age. Stainless requires no painting, washes bright-as-new in the rain or with occasional soap and water cleanings.

For complete information on Republic Stainless Steel for architectural applications, return the coupon. Or, check Sweet's Architectural Catalog File, Section 6c/Re.



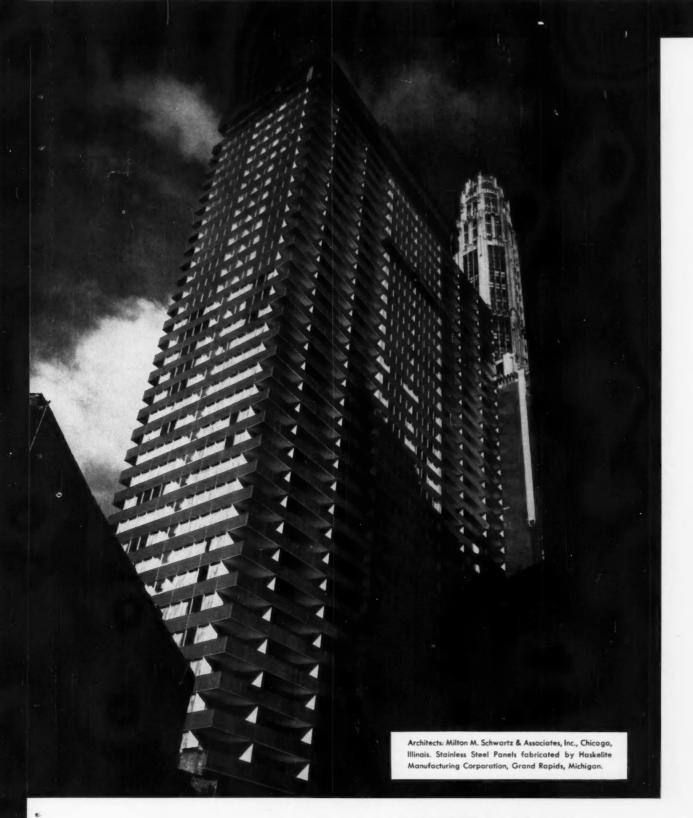
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2. 10¾" O.D. REPUBLIC STEEL PIPE was used in erecting the new Tremco Building in Cleveland, Ohio. Slabs were poured on the ground then hoisted up pipe by means of hydraulic screw jacks. Time and money were saved by the elimination of scaffolding and elevators. Slabs were raised at the rate of three feet per hour. The Austin Company, Engineers and Builders.



3. ALL THE ADVANTAGES of modern curtain wall construction plus the exclusive feature of insulated panels, integrated with heavy-intermediate steel windows, are yours with Truscon VISION-VENT* Window Walls. Pictured is the Boeing Airplane Company installation, Building #201, Seattle, Washington. With VISION-VENT, you select practically any type of window—steel or aluminum—with either stainless steel or porcelainized panels in a wide choice of colors. Send for literature.





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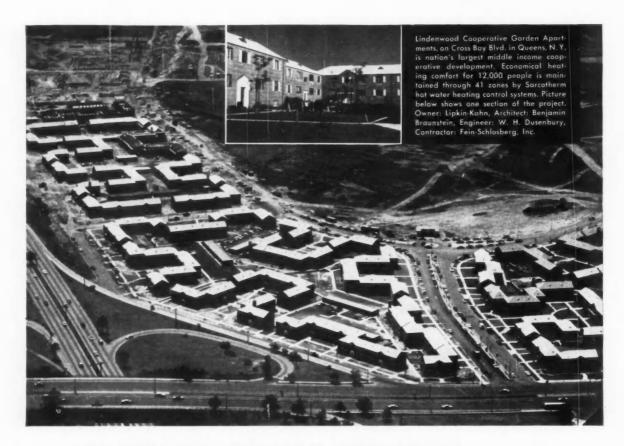
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\$40,000,000 PROJECT MAINTAINS EVEN, ECONOMICAL HOT WATER HEATING WITH SARCOTHERM CONTROL SYSTEM

The Sarcotherm Weather Compensated heating control system installed at the new Lindenwood Cooperative Garden Apartments in Queens, New York, assures its residents even, reliable heat regardless of outdoor temperature. The engineer, William Dusenbury, worked out with Sarcotherm specialists a system that provides for continuous, modulated hot water flow. This system also handles night setback and morning pickup automatically, requiring no supervision.

An outdoor bulb, sensitive to change in outdoor temperature, controls a 3-way mixing valve, which regulates the temperature of the hot water supply to the system, in accordance with outdoor temperature changes. For example, at an outside temperature of specify steam or hot water.

0°F., heating water is delivered at 200°F. An outdoor temperature of 65°F. sets the water control for 110°F. When the outside temperature exceeds 65°F., the Sarcotherm BA-4C High Limit Pump Control shuts off the heating system automatically. The PBA-2 program panel, especially designed by Sarcotherm engineers for apartment control, provides automatic heat programming. Comfortable, even heating is maintained in all 41 zones in the group of apartments.

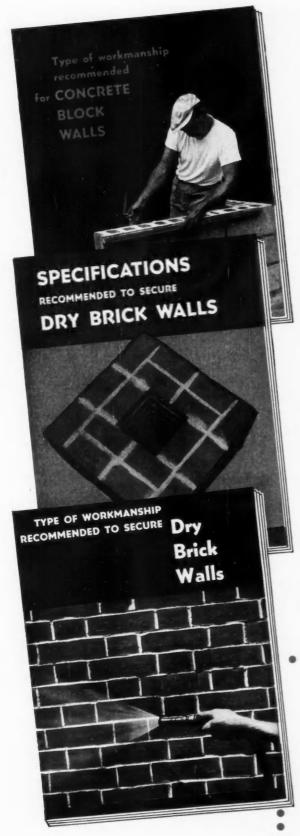
The entire installation of the control system was supervised by Sarcotherm Controls, Inc.

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SARCOTHERM CONTROLS

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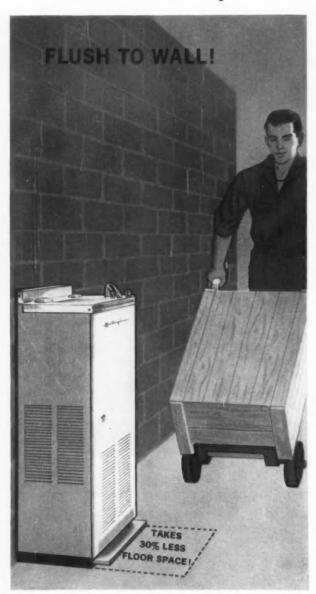
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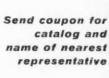
Nylon cam gravity bottom hinge



bottom hinge construction



Exposed view of







top hinge



Nylon bearing Combination keeper and bumper



Spring-tension slide bar latch

Henry Weis Manufacturing Co., Inc. Dept. K-2101, Weisteel Bldg. Elkhart, Indiana

Gentlemen: Please send new catalog of your Weis toilet compartments.

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A Report from Tectum Research and Development Tectum is *now* water repellent. Every fiber in the composition of Tectum building materials is now treated with *Fiberguard*. This is not a mere surface treatment; the new *Fiberguard* process coats each fiber throughout the board with a specially formulated protective silicone. This outstanding product improvement is the result of three years intensive research by Tectum's Research and Development Department.

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Remember, Tectum has more inherent benefits as a roof deck material than any other product on the market.

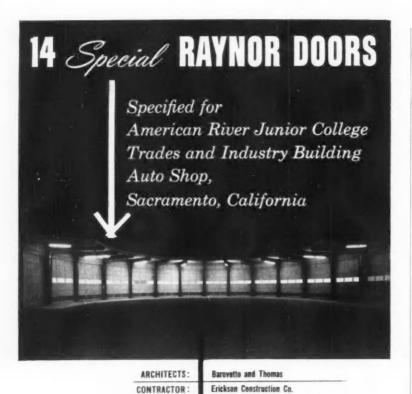
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and NOW has Water Repellency with Fiberguard unfelted edges of Tectum deck or if water leaks around unflashed roof openings, only the immediate exposed area is affected. Naturally, good practice dictates that proper precautions be taken in material storage and handling, but the hazard of possible staining from weather exposure is now effectively minimized. In case of roof leaks, water will drip vertically through the porous deck enabling you to quickly locate the source of the problem. Best of all there is practically no capillary migration laterally around the point of the leak. And, here is the big news; the new improved Tectum doesn't cost one cent extra. The price remains the same.

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For complete details on this new manufacturing achievement — How Tectum board is now even better for roof decks, form plank and the many special applications as a structural insulating and acoustical material — see your Tectum representative at the first opportunity, or write the General Offices in Columbus, Ohio. Find out how laboratory tests have proved the advantages of the new *Fiberguard* repellent; how three years of testing and perfecting have developed an even finer Tectum for your building projects.





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Dixon, Illinois Hammonton, New Jersey



Office Literature

continued from page 192

School Room Cabinets

(A.I.A. 35-C-12) Gives photos and elevation drawings of a complete line of cabinets for domestic science classrooms, food laboratories and sewing rooms, with detailed specifications and typical classroom layouts.

18 pp. School Room Cabinet Div., Kitchen Maid Corp., Andrews, Ind.*

Color Guide

... to Architectural Porcelain Enamel (A.I.A. 15-M-1) Shows 47 widely-used colors which have been incorporated in new standardized industry-wide color system. All have minimum Grade A acid resistance, stability and reproducibility in low gloss finish within commercial tolerances. Architectural Div., Porcelain Enamel Institute, 1145 Nineteenth St., N. W., Washington 6, D. C.

Stud Welding Fasteners

Describes the stud welding system; details standard designs; and gives complete engineering data and specifications on stud welding fasteners.

48 pp. KSM Products, Inc., Merchantville, N. J.

Metal Conduit and Tubing

Revised American Standard specifications cover zinc-coated rigid steel conduit (C80.1-1959), enameled rigid steel conduit (C80.2-1959), and zinc-coated electrical metallic tubing (C80.3-1959) used as raceways for wires or cables of electrical systems. All three standards also cover appropriate fittings, and give tables of dimensions and weights, coatings, and identification as well as test and inspection procedures. 80¢ each. American Standards Assn., Dept. PR 104, 70 East 45th St., New York 17, N. Y.

Safety Switch Catalog

(A.I.A. 31-D-42) Offers dimensions, capacities, voltages and horsepower ratings for complete line of light, standard, and heavy duty safety switches. 8 pp. Frank Adam Electric Co., Main P. O. Box 357, St. Louis 66, Mo.*

Luminous Ceilings

(A.I.A. 31-F-21, 39-B-1) Details complete line of luminous ceilings, along with commonly used lighting elements and correlated lighting fixtures. 8 pp. Luminous Ceilings Inc., 3701 N. Ravenswood Ave., Chicago 13, IU.*

*Additional product information in Sweet's Architectural File

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In the new Hollywood home of the First Federal Savings and Loan Association, beautifully styled Russwin Unilocs with Turbo design knobs complement handsomely modern architecture. The Uniloc, precision engineered for lasting dependability and smooth performance, is completely factory preassembled. It installs intact into a simple, saw-cut notch in the door. The heavy-duty components of this unique lockset remain in undisturbed, virtually wear-free alignment. A wide choice of Uniloc designs, finishes, and functions are available for any type of architecture, any lockset requirements. For full information, write Russell & Erwin Division, The American Hardware Corporation, New Britain, Connecticut.

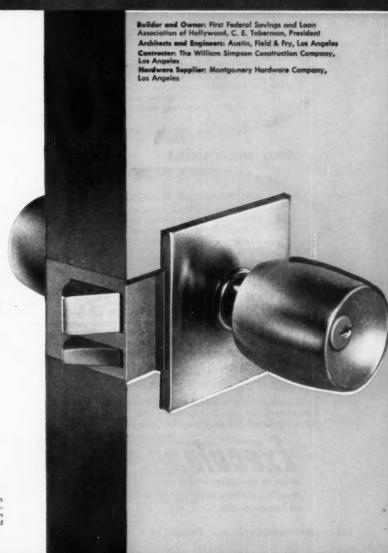
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Washington Report

continued from page 56

Housing Act of 1959 broadens the elderly housing program, authorizing insurance of mortgages on rental projects built by profit-motivated organizations, mortgage insurance for proprietary nursing homes, and direct loans to nonprofit corporations to finance rental housing where private financing is not available.

Another facet of the program focuses on Federally aided low-rent housing where 12,384 specially-designed units, either built or to be built, are specifically set aside for the elderly, the President was informed. And still another phase of the program uses the resources of FHA and the Federal National Mortgage Association to assist persons 60 years of age and older who wish to buy homes.

Available Aids Reviewed

A second portion of the report reviews the existing Federal government programs in some detail, explaining the methods of applying for assistance under them. This shows that since the FHA authority was established in 1956 the agency has received (as of Sept. 1, 1959) applications for mortgage insurance on the 61 projects located in 24 states. These will contain nearly 6800 dwelling units with accommodations for upwards of 10,000 older persons. Commitments have been issued on 44 of the projects. As of August 31, 1959, 12 projects containing 1416 accommodations were completed.

The program appears to be a popular one, with FHA field office directors reporting over 1600 inquiries about this type of housing. Were all of these to materialize, the report remarked, some 289,000 accommodations would be provided. At the time the report was submitted, 48 projects were imminent, involving insured mortgages totaling \$75 million, and providing about 8500 units.

The 1959 law also authorizes a new program of FHA mortgage insurance for privately-owned nursing homes. Under this, an insurable mortgage cannot exceed \$12.5 million, or 75 per cent of the estimated value of the property. The maximum interest rate is to be prescribed by the FHA Commissioner within a statutory ceiling of six per cent.

This review of the public housing phase of the HHFA operation was given: as of August 31, 1959, 301 units had been completed in six localities; construction had been started on another 1434 units, and annual contributions contracts had been signed with construction yet to start on another 9573 units.

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*Wasco has also developed a flat aluminum Pyrovent® for building areas that do not require daylighting



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windows without lintels doors without jambs...

WATERTOWN BUILDS A BEAUTIFUL SCHOOL ON A BUDGET

MARMET Curtain Wall is engineered in many ways to hold down your building cost per square foot . . . without sacrificing character of design or quality of materials. The cost of installing and "plumbing" many individual frames for windows and doors common to other types of fenestration is saved. Assembly of wall sections is also simplified for savings in erection costs. With Marmet Curtain Wall, Watertown was able to build beautifully on a budget.



Watertown High School Watertown, Wis. Architect: Durrant & Berquist

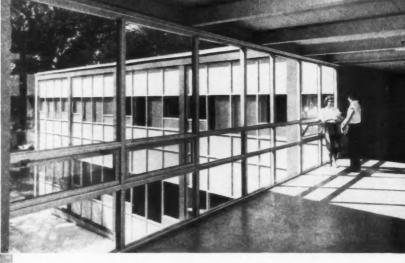


Series 6442-43 for 1 story or multi-story gridwall structures

Large interlocking grids with mating vertical mulls 4½" or 6" deep for varying shadow lines can quickly be erected by two men. Mortise and tenon type joints are connected with bolts, carefully concealed by the glass race. Special expansion joints are employed at the proper intervals.

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Notice how the doors in the entrance at left are hung right in the curtain wall section without requiring special, separate framing.

MARMET series 1000 doors are fabricated with tubular sections, bolted and "thru-welded" at each corner leaving no exposed screws, only a neat hairline joint. The doors' handsome appearance is further enhanced by a snap-on, extruded aluminum glazing bead.

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Only Hubbell "TWINSAFE" provides these 2 Safety Features

FIG. I—A slot for grounding power tools and appliances equipped with plugs having U-shaped grounding blade.



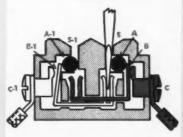


FIG. 11.—Internal construction that shunts current harmlessly away from inserted metallic objects. Red indicates

You will find two safety features in the new Hubbell "Twinsafe" receptacle that are combined in no other convenience outlet today:

A U-shaped grounding slot that instantly grounds power tools and appliances equipped with any standard grounding cap, as in Fig. 1.

A design that permits current to flow out through the slots only when both blades of a standard cap are firmly in place.

If, as shown in Fig. 2, a metal object thicker than 0.031'' is inserted in one slot, it causes fibre insulating disc A to press against spring B, causing B to touch C, which is the power supply. But instead of the power's flowing to clip B_1 which the inserted object is touching, "Twinsafe" construction shunts the power harmlessly to the opposite slot. (Note that, on the side of the idle slot, spring B_1 is not touching power supply C_1 because disc A_1 is not pressing against it.

Protection is complete even if a child tries to insert both points of a hairpin in the two slots at once. The insulating discs are so positioned as to make entry difficult. Furthermore, for the discs to be moved enough to establish the internal electrical contact, the inserted object must be more than 0.031" thick—which the leg of a hairpin is not.

The Hubbell "Twinsafe" receptacle SG-62 for 15-ampere, 125-volt current costs only a trifle more than ordinary equipment, but it is worth many times the difference in added safety and peace of mind. In schools, mental institutions, hospitals, prisons, and similar structures, use of "Twinsafe" is practical insurance against tragic accidents.

"Twinsafe" receptacles fit standard outlet boxes and are installed by qualified electrical contractors.

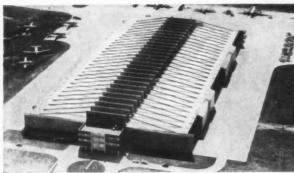
For complete information see Sweet's 31 b/Hu, or write

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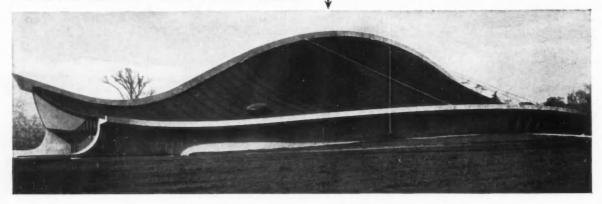
UTICA MEMORIAL AUDITORIUM, N. Y. Architects: Gehron & Seltzer, New York City • Associate Architect: Frank C. Delle Cese, Utica • Consulting Engineer: Dr. Lev Zetlin, New York City • Contractor: Sovereign Construction Company, Ltd., Fort Lee, N. J. • Roof Supporting Structure, Including Cables, Furnished and Erected by Roebling





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YALE UNIVERSITY'S - DAVID S. INGALLS ICE HOCKEY RINK, NEW HAVEN • Architect: Eero Saarinen and Associates, Bloomfield Hills, Michigan Consulting Engineers: Severud-Elstad-Krueger, New York City • Contractor: George B. H. Macomber, Boston and New Haven • Cables by Roebling



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The suspended roof beautifully weds aesthetics and practicality. This daring and down-to-earth design and construction technique has literally "spread its wings" over a number of different structures as to the dollars and cents benefit of its builders as well as to the delight of its observers.

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Shown here are a few of the examples of what architects and builders are doing with the suspended roof. We at Roebling seriously invite your inquiries on *any* phase of the suspended roof or other types of suspension systems. Our history includes suspension bridges of every description, tramways, guyed towers and ski lifts. Any means of communication to Roebling's Bridge Division, Trenton 2, New Jersey, will bring you a wealth of material.



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The Record Reports

On the Calendar

January

12-15 16th Annual Technical Conference, Society of Plastics Engineers-Conrad Hilton Hotel, Chicago

14-15 15th Annual Short Course in Residential Construction, sponsored by University of Illinois Small Homes Council-Building Research Council-University of Illinois, Urbana-Champaign

17-21 16th Annual Convention and Exposition, National Association of Home Builders-Conrad Hilton and Sherman Hotels and The Coliseum, Chicago

25-28 11th Plant Maintenance and Engineering Conference and Show-Convention Hall, Philadelphia

February

Semi-Annual Meeting, American Society of Heating, Refrigerating and Air Conditioning Engineers-Baker Hotel Memorial Auditorium, and Dallas

First Instrument-Automation Conference and Exhibit of 1960, sponsored by Instrument Society of America-Rice Hotel and Sam Houston Coliseum, Houston

18-20 Winter Meeting, National Society of Professional Engineers-Broadview Hotel, Wichita, Kan.

22-27 Banff Session '60, Architecture and Structure-Banff. Alberta. Canada

March

Fifth National Electrical Industries Show, sponsored by Eastern Electrical Wholesalers Association—The Coliseum. New York

7-11 National Convention (first of three in 1960), American Society of Civil Engineers-New Orleans

13-14 Annual Convention, National Housing Conference-Statler-Hilton Hotel. Washington

14-17 56th Annual Convention, American Concrete Institute-Commodore Hotel, New York

continued on page 264





Photo by Julius Schulman

From its huge, impressive aluminum dome to its 9,000 square yards of carpeted flooring—from its vast, circular amphitheatre to its many movable partitioned rooms and halls—serving meetings of 50 to 18,000 people—the ultra modern Las Vegas Convention Center required a versatile and thoroughly reliable sound system. Recognizing Altec's unique ability to meet every sound need, the engineers specified ALTEC. You'll find ALTEC sound relied upon also in Las Vegas' multi-million-dollar civic auditorium, at the Tropicana, and seven other luxury hotels. Throughout the world, in stadiums, auditoriums, hospitals, schools, churches, shopping centers, in government, commercial and industrial buildings—engineers and architects count on the sound leadership of ALTEC engineered sound products.

ALTEC sound systems, like all ALTEC products, are designed for dependable service under all conditions, for long life, and for ease of installation and service. A force of hundreds of ALTEC engineer-

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See Altec's product listing in Sweet's Catalog Architectural File (17e/AL), 1960 Edition.

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 Adrian Wilson & Associates
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ALTEC LANSING CORP., Dept. AR-9D 1515 S. Manchester Ave., Anaheim, Calif. 161 Sixth Ave., New York 13, New York

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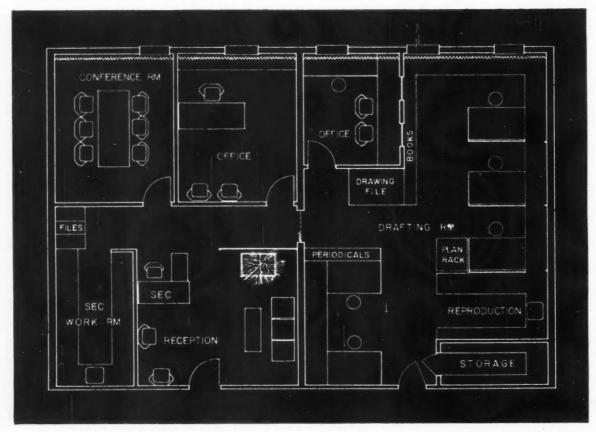


Wolmanized® Lumber

Architect: R. James Robbins

ON THE SIDE OF THIS UP-TO-DATE FIRM

office of STOFFLE & FINGER, Architects, New Orleans



The efficient layout of the office of Stoffle & Finger (shown above in plan) suggests the concern for time which characterizes this busy New Orleans firm. Not visible are the work, traffic and communication practices which keep its gears meshing smoothly on each project . . . through contracts, preliminaries, working drawings, specifications, engineering and supervision. The company's assignments — which cover an extreme range from \$15,000 to \$2,000,000—are expedited with consistent care and efficiency. The members of the firm feel that Dodge contributes importantly to this service.

Stoffle & Finger's cooperation with the Dodge Reporter pays off in benefits to architect and client alike. Dodge Reports help establish a broader bidding and quoting base for projects large and small. (In the latter case, the proportion of cost variation is often most critical.) The Dodge

Reports direct the attention of vendors to specific projects — resulting in the use of many newer products and services to the client's advantage. Dodge Plan Rooms relieve Stoffle & Finger of the need to maintain a contractors' room . . . and, together with Dodge Reports, divert unnecessary traffic and inquiries away from the architect's office. Completion dates are often earlier because subs and distributors are alerted well in advance.

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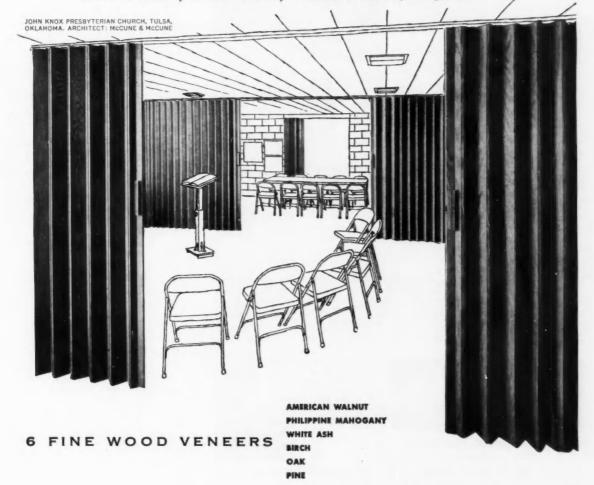


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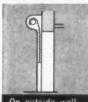




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the doorway.

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the wall

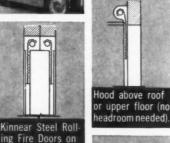
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(ventilator, observatory or similar openings).











Hood above lintel or atop wall (per mits low ceiling)

Inverted mounting

door coils below

the sill level).

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The Record Reports

21-23 First National Electric House Heating Exposition, sponsored by Electric House Heating Equipment Section, National Electrical Manufacturers Association-Sherman Hotel. Chicago

Office Notes

Offices Opened

Omer J. De Bever & Associates, Consulting Electrical Engineers, has been established at 2872 Rowena Ave., Los Angeles 39. Mr. De Bever formerly was chief electrical engineer for Charles Luckman Asso-

Francis E. Telesca, A.I.A., has opened an office for the practice of architecture in Miami. He formerly was chief architect for Rader & Associates

Victor M. Villemain, R.A., consultant in site planning and landscape architecture, has opened an office at 157 W. 57th St., New York 19.

Firm Changes

Henningson, Durham & Richardson, consulting engineers and architects in Omaha and Colorado Springs, announces that Louis A. Cutler, A.I.A., has joined the Omaha staff.

A. M. Kinney Associates, Architects & Engineers, announces that Roy C. Neumann has been named deputy director of architecture. Also, A. M. Kinney, Inc., Consulting Engineers, announces that Richard M. Larimer has been appointed assistant to the president and will represent the firm in Columbus, Ohio. Both firms are at 2912 Vernon Pl., Cincinnati 19.

New Addresses

Puckett & French, Architect and Engineer, 600 E. Fourth St., Big Spring, Texas.

Skidmore, Owings & Merrill (San Francisco office), 1 Bush St., San Francisco.

Correction

The RECORD regrets that one credit was inadvertently omitted on page 212 of the October issue in the story on the Philip Morris Research Center (Ulrich Franzen, Architect). Decoration was by: Thalhimers Industrial Sales Corp.

more news on page 270



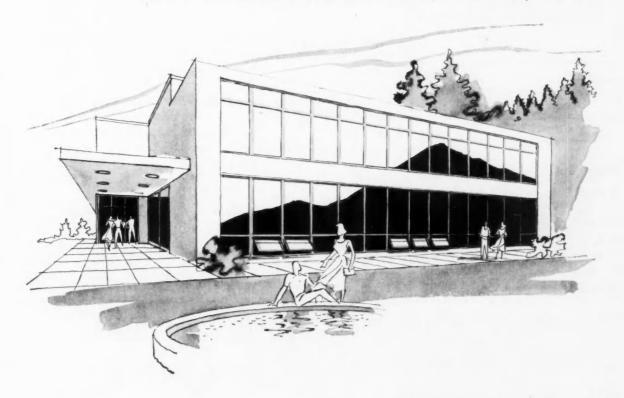
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massive fenestration for recreation building

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ficiently in a building that requires good natural ventilation. The next time you work on a municipal, commercial or residential project, let these quality wood windows help execute your best ideas. Consult your classified telephone directory for the name of the nearest U.S. or Canadian Pella distributor.

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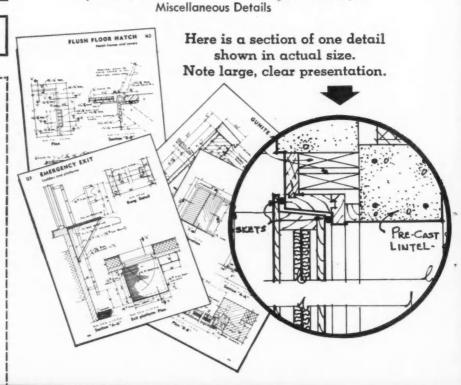
The details are large enough to trace or project for direct use, or they can be adapted as necessary. These details have been proved in use by architects, draftsmen, plant engineers and other engineers. They will save hours of detail drawing and searching through files and folders. The details cover every part of the contemporary industrial building.

The book is made more useful and easier to use by a listing of abbreviations, a key to materials symbols, and a complete master index which will enable you to locate any detail in an instant. INDUSTRIAL BUILDING DETAILS should be in the working library of every architectural, engineering, and industrial firm.

17 MAJOR SECTIONS

Structural Details Walls and Windows Louvers Roofs and Parapets Monitors Floors Ventilators and Stack Curbs **Expansion Joints**

Flashing Canopies Doors and Door Frames Stairs and Landings Ladders and Platforms Hatch Covers and Frames Catch Basins and Manholes Storage and Transport





wood casements with muntins

accent colonial office building

Pella wood casement windows offer interesting solutions to the problem of making a commercial building compatible with residential neighborhoods. Fenestration can be easily varied through the use of removable muntins which are available in three styles: Diamond, Horizontal and Regular. In glass heights up to 68", Pella wood casements are pleasingly proportioned to blend with both traditional and contemporary architecture. A wide variety of sizes permits planning flexibility. Pella wood casements offer distinct design and convenience features that recommend them beyond your residential jobs. Consult your classified telephone directory for the name of the nearest U.S. or Canadian pella distributor.





Pittsburgh Fab-Form, available in lengths up to 28 feet, 3 inches with \%-inch corrugation, is handled easily on steel joists by one man at St. Regis Church and School in Trafford, Pa. Contractor H. Justin Brown & Son, Mt. Lebanon, Pa., reported it took four men just one day to lay 10,800 square feet of Fab-Form. Fab-Form was sold and engineered by W. N. Dambach, Inc., Pittsburgh, Pa. Architect: Ermes Brunettini, A.I.A., Verona, Pa.

New Fab-Form by Pittsburgh Steel Cuts Floor and Roof Slab Costs, Gives Greater Length and Width

Fab-Form, a brand new addition to Pittsburgh Steel Products' line of quality construction products, builds in savings of materials and erection time for concrete floor and roof slabs.

New Fab-Form—longest and widest corrugated, permanent steel form for slabs poured over joists—reduces the number of end and side laps through its 32-inch cover width and extra length.

In addition, Fab-Form has an exclusive new welding method that is literally a snap.

Fab-Form is fabricated:

 In standard lengths, plus other lengths up to 28 feet, 3 inches twice as long as most others.

In a cover width of 32 inches.
With deepest corrugation — a

full %-inch — of any standard steel centering.

Plain or Bonderized with an exclusive baked-on duPont red oxide primer that provides weather protection and serves as an excellent primer base for further painting of exposed underside. Fab-Form's special protective finish prevents water stain or "white rust."

Fab-Form's uniform strength comes from high-tensile (90,000 to 100,000 psi), 27 gage, cold rolled

steel sheet.

• Ideal for School—One of the first construction jobs in which Fab-Form was used was the new St. Regis Church and School in Trafford, Pa. Architect for the job was Ermes Brunettini, AIA, Verona, Pa. More than 33,000 square feet of Fab-Form supports three-inch concrete floor and roof slabs set on steel joists.

Thomas A. Laboon, job superintendent for H. Justin Brown & Son, general contractors from Mt. Lebanon, Pa., said that the deeper corrugations in Fab-Form helped make a stronger slab. Pittsburgh Steel's six-inch square mesh made of No. 6 gage wire was used for reinforcing.

Fab-Form's speed of installation also impressed Mr. Laboon. He said that it took four men just one day to lay 10,800 square feet of Fab-Form on roof joists. After sections were laid, welders using the unique Fab-Form Welding Washer Stick made plug welds to every other joist.

• Easy as A, B, C—Welders found using the exclusive Fab-Form Welding Washer Stick unusually simple. Pittsburgh Steel developed the unique stick so that each welder bent up the end washer on the stick, made his plug weld and snapped off the washer—in just seconds. This eliminates fumbling in heavy gloves for individual washers. Next, mesh was installed and the slab was poured.

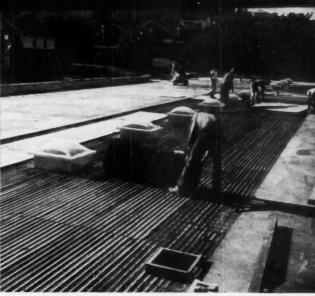
"Everything came out exactly right with no scrapped material," said Mr. Laboon in commenting on the economy of Fab-Form. "The side and endlapping worked out exactly right.

"On top of that," he added, "you know that when Fab-Form is down you have a material that will take a beating from men tramping on it, buggies and even rough weather.

"Later, after the slab is poured,



Deepest corrugation, 5/8-inch, of all standard steel centering is available with Fab-Form. Job Superintendent Thomas A. Laboon, left, shown with Pittsburgh Steel Products Salesman C. W. Bainbridge Jr., said deep corrugation helped make a stronger slab.



Rugged Fab-Form, longest and widest corrugated steel centering for concrete floor and roof slabs on the market, easily supports a three-inch roof slab. Fab-Form saves material and erection time,

you are confident that the same material will go a long way in helping provide sound construction.'

Join the growing list of satisfied Fab-Form users. Your first application will convince you of Fab-Form's advantages . . . from Pitts-burgh Steel Products Division, a leader in the construction products field for more than 30 years.

Write today for literature or, better yet, contact the nearest Pittsburgh Steel Products sales office listed here.



Pouring is no problem with Fab-Form. Here a buggy has rolled over Fab-Form without damaging the material. Six-inch square mesh made of No. 6 gage wire is from Pittsburgh Steel, too.



Exclusive Fab-Form Welding Washer Stick reduces installation time. After the end washer on the stick is bent up, the welder makes a plug weld and snaps off the washer. Then mesh is installed and slab is poured.

Fab-Form

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Washington Topics

continued from page 60

put to rest by action of the A.I.A. Board of Directors at their Portland session in November.

The Board adopted as Institute policy a statement which encouraged "an extension to private works, wherever possible, of such retained percentage procedures as now prevail on Federal public works. Such retained percentages would be at the rate of 10 per cent until 50 per cent of the job is completed, after which there shall be no additional retainage, provided that the work has proceeded to the satisfaction of the architect and/or owner."

This is essentially what the objecting groups had been seeking. An early November meeting at the Octagon in Washington brought the construction interests together to discuss the problem. The general contractors, subs and credit men, along with some other segments, outlined their views, and the A.I.A. spokesmen promised that the subject would be considered at the annual fall board meeting in Portland.

Milestone for Plastics Seen In New FHA Release

What a Manufacturing Chemists Association official called "the first official recognition on a national scale" of a plastic material for flashing building joints against water penetration was effected in a recent materials release by the Federal Housing Administration on Dow Chemical Company's Saraloy 400 elastic flashing. The substance was described as a black thermoplastic flexible sheet composed of saran polymer, carbon black, and suitable plasticizers and stabilizers. The nominal thickness is 1/16 in.

FHA set up the following controls for use of the material in valley, through-wall, cavity wall, masonry veneer base, vent and chimney flashing and in parapet walls and under copings:

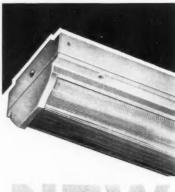
1. Installation must be in accordance with the producer's instructions for each specific use.

Lap must be provided in accordance with manufacturer's recommendations.

3. Sealing of joints shall be in accordance with manufacturer's instructions.

4. Changes in the design, composition or application instructions shall void the suitability of this product for the intended uses as outlined.

William Demarest Jr., director of Plastics in Building for M.C.A., continued on page 282



98

weatherproof

extruded aluminum enclosed and gasketed

waterproof · corrosion resistant

For tunnels - underpasses - airport ramps subways - loading docks - station terminals laboratories - chemical industries - garages piers - service stations - swimming pools and marine applications.

High corrosion resistance combined with strength... low brightness with Holophane compound Controlens **.. new wiring economy with extra large wire channels... Choice of High Output Rapid Start or Slimline-available in 4, 6, 8 ft. individual lengths. or in continuous russ.



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announces the second

\$25,000 annual design competition

to stimulate a major contribution to

MORE EFFECTIVE UTILIZATION OF SCHOOL PLANT —

EDUCATION for youth and adult RECREATION for all the family

TURN PAGE FOR DETAILS

awards

OPEN TO ALL CONTESTANTS

Grand prize	10,000.00
2nd prize	5,000.00
3rd prize	2,500.00
6 Merit Awards of	500.00

STUDENTS ONLY

1st prize	2,000.00
2nd prize	1,000.00
3rd prize	500.00
4 Merit Awards of	250.00

eligibility

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Registered architects of the U.S.A.

Architectural assistants to registered architects of U.S.A.

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NOTE: Special awards for students not successful in general competition. Students winning a major award will not be considered for student awards.

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DR. HARRY JAMES CARMAN, Dean Emeritus, Columbia College, N. Y.

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MASTIC TILE DIVISION

\$25,000 annual

THE FIRST ANNUAL COMPETITION had as its premise "BETTER LIVING FOR THE MIDDLE INCOME FAMILY". A quarter section site of 160 acres adjacent to a new industrial park was chosen as typical of sites now being developed throughout the country as tract housing.

The architectural profession was given the challenge of developing this property as "A PLACE TO LIVE AND REAR A FAMILY".

Many significant solutions were presented which, it is hoped, will result in improvement of tract development.

The Second Annual Competition extends the challenge to, the architectural profession for the next important element of family living—"EDUCATION FOR YOUTH AND ADULT—RECREATION FOR ALL THE FAMILY".

Many communities are struggling with the problem of bond issues successively added to the community tax burden as the continued pressure of educational needs forces the sometime reluctant community into action. These educational taxes added to the taxes required for other needed and desirable community facilities, such as parks and recreation, cumulate in an economic drain on the middle income house owner. There is therefore a daily growing problem of solving the overall community needs on a long range basis of physical planning and financial funding.

Last year's winning design provided for neighborhood community facilities at its core with safe pedestrian access. The local school authority has felt that the 614 dwelling units provided warrant an elementary school at the core of the development and has taken independent steps to achieve this. However, Junior High School, High School and Community College facilities will eventually be needed for the large residential growth in the surrounding territory.

While short of the ideal and limited by existing controlling factors a definite attempt has been made by the Municipal Government to establish suitable zoning conditions for future growth. Through a collaborative effort of community and industry, a generous tract of land has been made tentatively available for community education and recreation needs subject to demonstration of its suitability and financial feasibility under a long range bonding program.

Hot controversy and concern exists in the community as to the validity of current educational techniques and the need for a stiffer educational approach to match the technical demands of the space age. The rising cost of modern educational plants has been very strongly challenged. It has been decided to retain a firm of architects to prepare a feasibility study of the use of the above tract of land for education and active and passive recreation, and to submit preliminary plans for the first projected

element of construction, a Junior High School,

You are the hypothetical architect

THIS IS THE PROGRAM: Overall development of the 280 acre site with integration of the following facilities:

- 1. Junior High School for 2,000 students.
- 2. High School for 2,500 students.
- 3. Community College (2 years) for 1,200 students.
- Active and passive recreation for a rapidly growing satellite community providing greatest flexibility and sustaining revenue potential within the limitations of available land.
- Adult use of educational and associate athletic facilities to the greatest extent possible without sacrifice of prime function.

The existing county road will be restricted for local access but the substantial volume of traffic engendered by the proposed community facilities shall be considered, including the problem of safe access to the site from the rapidly growing residential area to the southwest.

The overall study need be developed only to the extent necessary to demonstrate general site planning and functional integration or juxtaposition of facilities for maximum usage at minimum overall cost.

The Junior High School shall be developed in sufficient detail as to demonstrate educational objectives, plan organization, architectural character and general type of construction. Anticipated construction cost shall be given as a lump sum for the building only, excluding site development beyond a line five (5) feet from the building. Cost per square foot of gross area and cost per pupil shall be stated.

To permit uniformity of cost factors the local conditions shall be considered the U.S. Average of 535, as published in Engineering News Record Building Cost Index, listed below.

A typewritten analysis stating the educational objectives considered and developed in the solution shall be incorporated in the submission together with any other pertinent data which the Contestant may wish to present for the consideration of the Jury.

"I believe that only through education can we meet the many challenges and problems of today. How to provide the necessary physical facilities, without sacrificing educational quality and imposing too-heavy tax burdens, is a problem weighing heavily on every community. It is hoped that this competition will stimulate practical, workable solutions to this great challenge and develop a closer collaboration between the architect, educator and private citizen."

SEYMOUR MILSTEIN, President
MASTIC TILE DIVISION • THE RUBEROID CO.

STATISTICS
AND
CLIMATOLOGY

ENGIN		NEWS RECORD	
Atlanta	472	Los Angeles	530
Baltimore	542	Minneapolis	553
Birmingham	493	New Orleans	494
Boston	542	New York	609
Chicago	562	Philadelphia	569
Cincinnati	515	Pittsburgh	595
Cleveland	533	St. Louis	563
Dallas	469	San Francisco	533
Denver	532	Seattle	484
Detroit	574	Montreal	449
Kansas City	533	Toronto	472

BUILDING COST INDEX DEC. 25 1958

AVERAGE TEMPERATURE	IN or.
MAX.	MIN.
January	7
July 88	68
Extremes 109	17
PREVAILING WIND	S
January	NE
July	
Average	

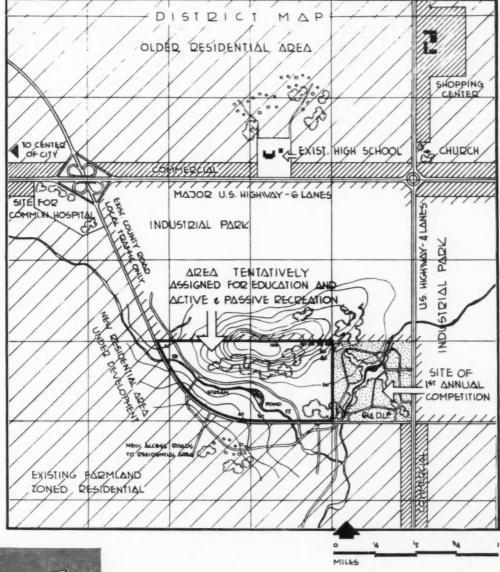
lanuary	80% 75%
Vormal	50%
PRECIPITATION	
Normal	nual
Sunshine Frequency	45%
Daytime Cloudiness 50	-55%
Cloudy Days	40%
Winter Sunshine	30%

Summer Sunshine Dense Fog

HUMIDITY - 8 AM

• The RUBEROID Co.

design competition





MASTIC TILE DIVISION . The RUBEROID Co.

Houston, Tex. • Joliet, III. • Long Beach, Calif. • Newburgh, N. Y. Vinyl Tile • Rubber Tile • Asphalt Tile • Vinyl-Asbestos Tile • Plastic Wall Tile

method of submission

TACH SUBMISSION SHALL consist of not more than three 30x40 illustration boards, used vertically, or sunners, permit handling and display. Drawings shall be in black and white suitable for reproduction. For uniformity in judging, the overall site plan shall be drawn at the scale of 1" equals 200'. Typewritten information, schedules, etc. may be applied to front of illustration boards. There shall be no projecting lettering or other materials. Each board shall have a thin card mounted face inward on the back with gummed tape, bearing the Contestant's name (or names, if a joint submission), address, and school or office affiliation; a statement signed by the Contestant(s) that this particular submission has not been previously submitted in any other competition; the name of the individual or individuals to whom award check is to be made payable and address of the individual to whom it is to be mailed if award is made for the submission. If the contestant is an undergraduate student he will so indicate on the back of the submission.

Submissions shall be addressed to Mastic Tile Division, The Ruberoid Co. and delivered to The Architectural League of New York, 115 East 40th Street, New York 16, New York, not later than 12 Midnight on June 30, 1960. Submissions will be returned by prepaid registered mail wherever possible. However, the sponsor cannot assume responsibility for loss or damage to entries. Exhibit, reproduction and publication rights are reserved by the

sponsor for a period of one year after award.

Submissions will be numbered in order of receipt and each will be anonymous until the Jury has judged the entries which are identified by number only. The Jury shall have full and final power in the selection of all entries for award. By taking part in this program the Contestant(s) agree(s) that he shall have and make no claim against the Jury, any member thereof, the sponsor, the endorsing institutions, on account of anything that may be done or omitted to be done, except for awards made to him. The mailing of the check payable in the amount awarded to the name or names given on the original entry shall constitute full payment of the award.

Notification of awards to entrants will be made by the sponsor as soon as practicable after judging is completed, and payment of award as above shall also be made as soon as practicable.

The sponsor has not set any restrictive conditions as to materials, method of construction, or design classification.

It is hoped that the results of this competition will awaken community interest toward long range growth planning.

NOTE:

It is felt that the problem of distribution of answers to questions may cause inequities among contestants. Therefore the contestants should rest on their own judgment of the problem as stated.



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Please send me _____ additional copies of the program for the design competition.

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Citizens State Bank, Oklahoma City, Oklahoma. Three Ceco products were used to help achieve a dramatic architectural effect here. The products were Reinforcing Steel, Wire Mesh and Open-Web Steel Joists. Architect: Bailey-Bozalis-Dickson and Roloff; Contractor: Secor Building Company, Incorporated.

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Bank of Commerce, Washington, D.C. Here's an example of concrete joist construction through use of Ceco Steelforms. Concrete was reinforced with Ceco Rebars. Ceco 200-B Aluminum Double-Hung Windows provide adequate daylighting and weathertight protection. Architect: Corning & Moore; Contractor: Standard Construction Company, Inc.



Ellis Truck Terminal, Indianapolis. Exposed waffle ceiling created with Steeldomes. Other Ceco products: Aluminum and Steel Windows, Hollow-Metal Doors, Steel Joists, Steel Roof Deck, Reinforcing Steel and Welded Wire Fabric. Architect: Monical & Wolverton; Contractor: Bugher Construction Co.

Redwood High School, Larkspur-Corte Madera Area, Marin County, California. In this handsome school building the architectural needs were met by four Ceco products: Reinforcing Steel Bars, Open-Web Steel Joists, Cecor Centering and Ceco Metal Windows. Architect: Gromme, Mulvin & Priestley; Contractor: Midstate Construction Co.



Here are two widely-used roof fans, typical of Allen engineered ventilation for modern structures and industrial uses:



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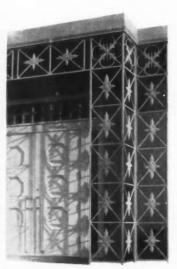
MAIL COUPON for specifications and performance data on these and other Allen units



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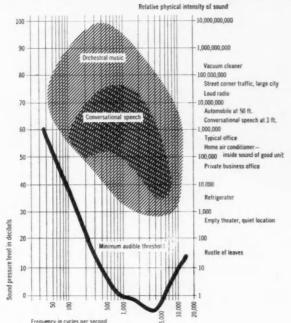






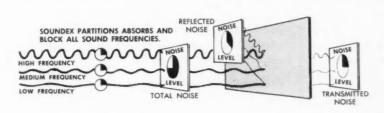


What architects should know about office sound control problems...and



The elements which make sound energy difficult to control are the almost friction-free medium of air, and the tremendous range of the human ear as a sound receiver. Since most speech and typical office machine sounds fall within the area of maximum ear sensitivity (600 to 6,000 cycles), proper control within this range is a major element in increasing worker efficiency and reducing office fatigue. The noise level of a room can be measured in terms of decibels, the smallest amount of sound the human ear can detect. Most offices have a rating of between 40 and 80 decibels. The job must be analyzed to see what type of sound problem exists. If noisy machines annoy people in the room, then the problem is one of soaking up the noise or sound absorption. If the problem is to stop the sounds that originate in the room from going into the next room, then it concerns transmission, and walls, rather than partitions, must be installed.

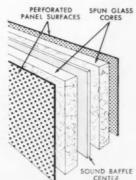
its solution with GR soundex partitions



Sound waves travel in every direction from their source. When they strike something, part is absorbed and part bounces off in all directions. SOUNDEX partitions trap and absorb sound waves. They have a noise-reduction coefficient (NRC) of .85, which means we can reduce the noise level as much as 38% in some rooms. Where the problem of sound transmission is concerned, Soundex walls are recommended. The sound blocking quality of these walls rates high (40 decibels), more than enough for all but "heated" discussions.

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The construction of SOUNDEX partitions is such that as sound passes through the perforations of the partition surfaces it is partially soaked up by the 1¼" fiberglass behind the holes. Waves that get through the glass set up vibrations in the center baffle which, acting as a diaphragm, returns the waves to be "re-absorbed" in the fiberglass on each side of it. Thus the patented "floating core" principle doubles the partition sound absorbing efficiency.



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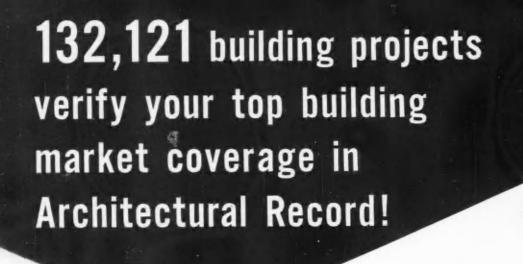
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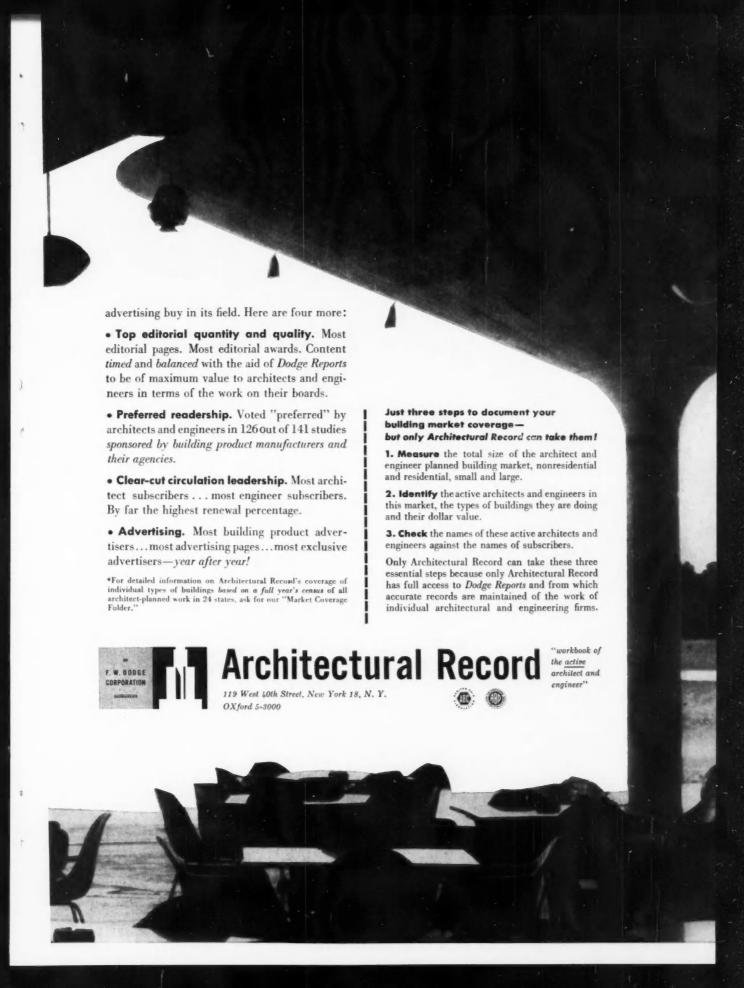
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Washington Topics

continued from page 270

trade group of raw plastic producers, regarded the move as one of considerable importance in the adaptation of plastics to construction. Mr. Demarest told ARCHITEC-TURAL RECORD: "The great significance of this development lies in the fact that this approval represents, to my knowledge, the first official recognition on a national scale of a nationally distributed organic plastic, flexible material for flashing exposed building joints against water penetration. Metals have traditionally been the accepted materials for this important function."

Cooperation on Preservation Urged in New Report

Among nine recommendations made recently by the Advisory Board on National Parks, Historic Sites, Buildings and Monuments was one urging that sites of exceptional value in non-public ownership should be included in the long-range National Park System plan. It was indicated the Board felt these sites were suitable for and needed by the NPS to round out its interpretation of American history.

The new guidelines concerning the preservation of historic sites and buildings under the National Survey emphasized that historical preservation in the U.S. should be a cooperative effort of Federal, state and local governments, patriotic orand ganizations civic-minded groups, and that the Federal government should not attempt to administer all significant historic sites throughout the nation.

The Board said that the Federal government should not seek ownership of exceptional historical and archeological sites already held in public or semi-public ownership, but instead should give encouragement to the state, municipality, or organization in its preservation efforts.

Huge Investment Need Seen for Water Resource Development

The Business and Defense Administration (Department of Commerce) estimated that a capital investment of nearly \$171 billion would be required to develop needed water resources in the U.S. by 1975. The long-range forecast was based on projected population growth, industrial expansion and anticipated higher living standards.

The report said that the required outlay would approximate the accumulated value of investments in these resources since 1970.

Authoritative treatment of a special building type . . .



PLANNING HOMES FOR THE AGED

by Geneva Mathiasen and Edward H. Noakes

Here, in one volume, is the first comprehensive planning guide on the problems of designing and building homes for the aged and infirm. Anyone contemplating such construction, on any scale, will benefit from con-sulting this new book first.

An expert in problems of the aging and a noted institutional architect jointly edited PLANNING HOMES FOR THE AGED. Their purpose was to provide written and graphic guidance to those responsible for the physical planning of such homes. They achieve this aim through an interesting, authoritative text and practical, con-temporary designs.

In addition, useful appendices give pertinent population data, building cost information, and an exhaustive bibliography for research. The text is fully indexed for easy reference to specific details.

Underlying this wealth of practical details and designs is much new thinking on principles, methods, and ideas which are applicable to all types of homes. General hospitals, chronic disease hospitals, homes for the aged (both profit and non-profit), nursing homes, and other related institutions are all covered by the important ma-terial presented here for the first time. Architects, owners and administra-tors of such institutions, as well as government health and welfare bureaus, can immediately benefit from the valuable assistance given in this new book.

119 pages, 83/4 x 111/6", clothbound, \$12.75

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New office building designed with the future in mind

TOU CAN BE SUR OF HTS Westinghouse

Exterior view of new home offices of Bankers Life Insurance Company of Nebraska, in Lincoln. Two different lighting systems are provided for the building, one for day and periphery lighting for night.



COVER PHOTO: Westinghouse Mainliner recessed fluorescent luminaires light the spacious stair wells which are finished with ceramic tile and terrazzo stairs. Shown here are C. E. Pickering, Westinghouse Construction Specialist; W. F. Sterbens, Wesco, Omaha; J. P. Anderson, James P. Anderson Company, Consulting Engineers; J. O. Unthank, Unthank and Unthank, Architects; R. W. Changstrom, Branch Manager, Wesco, Omaha; P. J. Assenmacher, President, Assenmacher Construction Company, General Contractor; and T. G. McBride, Sales Manager, Market Planning, Wesco, Pittsburgh.

Bankers Life Building designed for comfort, convenience, economy and expandability

The home office building of Bankers Life Insurance Company of Nebraska, in Lincoln, was planned and constructed to provide maximum efficiency and future expansion. It incorporates many ideas which resulted from a study of other home office insurance buildings throughout the country, plus a careful study of the company's operation and plans for future growth.

Careful consideration was given to the selection of easily maintained materials for efficient maintenance and low operating costs. This was accomplished through use of permanent materials which require no painting, such as Westinghouse decorative Micarta® surfaces; large areas of ceramic tile; terrazzo floors; glare-reducing, heat-absorbing glass; movable walls; changeable fixtures and complete flexibility of heating, lighting and communications facilities.

One of the most important considerations in planning and construction of the building was the selection of an adequate electrical distribution system and the electrical comfort and convenience components such an electrical system made possible. Westinghouse was specified throughout for the distribution system, lighting, elevators, motors and controls. The expandability inherent in the building itself is ample for the present electrical needs and provides for 100% future electrical expansion.

(contd.)

Westinghouse

J-94136-2



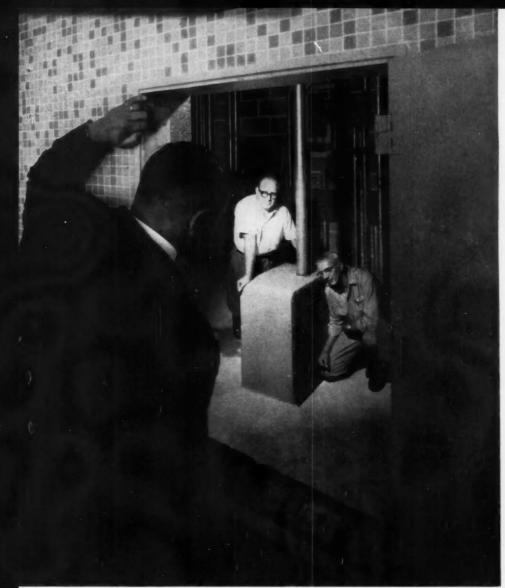
View of one of the scientifically planned work areas where the latest equipment is combined with planned use of space to make work easier and more productive. Complex electronic equipment necessary for accurate computations and record keeping requires special facilities including auxiliary air conditioners and humidifiers.



Office areas are illuminated with Westinghouse Mainliner recessed fluorescent luminaires. Modern functional furniture made with durable Westinghouse Micarta laminates was designed and built by Herman Miller of Zeeland, Michigan.



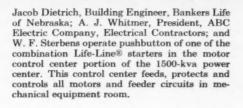
C. E. Pickering, J. O. Unthank and J. P. Anderson are shown in front of Westinghouse 1500-kva dry-type ASL power center. This power center steps incoming voltage down from 5 kv to 277y/480 for distribution through three Type DB-50 air circuit breakers.



W. F. Sterbens looks through the only opening of central ventilator-power duct shaft located in immediate office area of each floor. A compact 75-kva Westinghouse Type DT-3 dry-type transformer steps down voltage at point of utilization feeding underfloor duct. K. W. Bell, Building Superintendent, and Jacob Dietrich, Building Engineer, check noise level of transformer which must be inaudible to operate in office area. Size was also a prime consideration in fitting transformer through available opening. Only a Westinghouse DT-3 dry-type transformer combined small size, 75-kva rating and guaranteed silence.





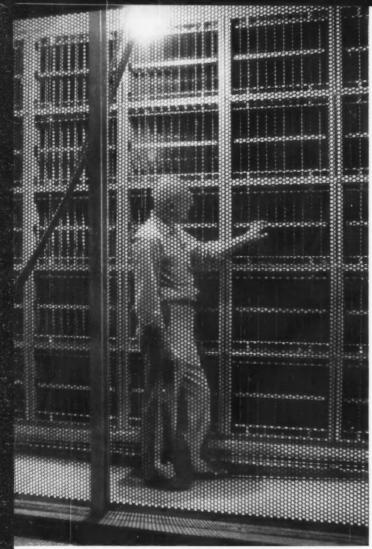




One of two Westinghouse 200-hp Life-Line motors which drive compressors in air conditioning system. Westinghouse motors from 1 to 200 hp were specified for all auxiliary equipment drives. Having a single source of supply simplifies maintenance and spare parts problems for operating equipment. Discussing the installation are J. P. Anderson; C. E. Pickering; J. O. Unthank; and Harold Stebbins, Vice President, Bankers Life of Nebraska.

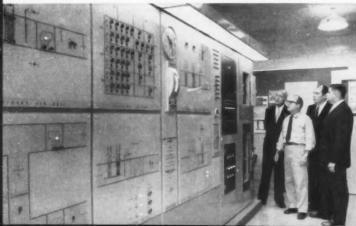


Harold Stebbins, C. E. Pickering, A. J. Whitmer, G. R. and J. O. Unthank are shown on one of the Westinghouse Selectomatic®-Automatic elevators which are traffic controlled to match, automatically, elevator service to traffic demand.



Jacob Dietrich views Westinghouse PRECIPITRON®, the Electronic Air Cleaner which removes up to 95% of all dirt particles, smoke and pollen in the air circulating throughout the building. This improves working conditions and also protects employe's health. The PRECIPITRON traps microscopic particles that cause streaks, smudges, damage to interior furnishings and office equipment, thereby reducing cleaning and maintenance costs.

This Supervisory Data Center in the Bankers Life Building is an electronic service board which registers temperatures and humidities throughout the building and automatically operates interior and exterior lighting, air conditioning and heating and even automatically turns on the sprinkling system for the land-scaped grounds. Harold Stebbins, K. W. Bell, A. J. Whitmer and W. F. Sterbens inspect two Westinghouse NPLAB lighting panelboards included in the central control board.



Building designed for comfort, convenience, economy and expandability (contd.)

The planners and builders also recognized that, in specifying Westinghouse, they would enjoy the economics possible when buying from a single source of supply and later being able to minimize maintenance, spare parts inventory, replacement and expansion problems.

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ARCHITECT: Unthank and Unthank, Lincoln, Nebr.

CONSULTING ENGINEER: James P. Anderson Company, Omaha, Nebr.

GENERAL CONTRACTOR: Assenmacher Construction Company, Lincoln,

ELECTRICAL

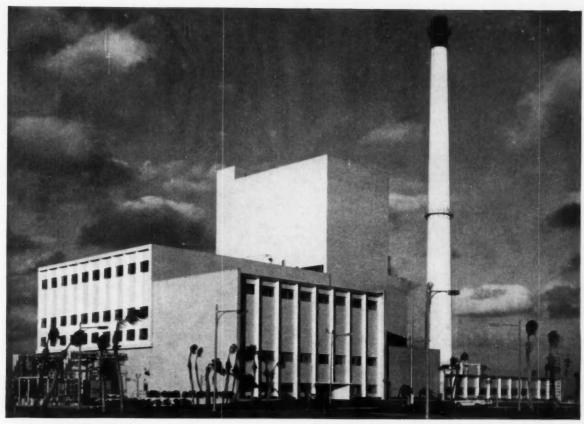
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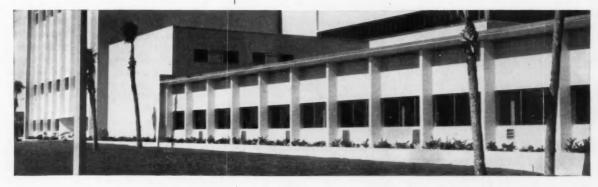
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Gompers Jr. High School, Joliet, Ill. Architects: Skidmore, Owings & Merrill, and Levon Seron, Associate Architects, Chicago. TOP AWARD

Award-winning schools feature



Gordon Road Elementary School, St. Clair Shores, Mich. Architects: Wakely-Kushner Associates, St. Clair Shores.

"HOMELIKE ATMOSPHERE"

"Selection and use of materials and good relationships contribute to the pleasing total effect. A friendly, homelike atmosphere," said the jury.

Fenestra Acoustical Building Panels were used in this school. These lightweight, high-strength steel panels combine structural roof and finished interior ceiling built-in acoustical treatment. They replace five different materials with one metal building unit, erected in one operation, by one trade.

BUILT-IN FIRE PROTECTION

Fenestra Hollow Metal Doors deter spread of fire, particularly when equipped with closers that have a special fusible link. In the presence of heat, these links melt, causing open doors to close automatically. An excellent, low-cost precaution for doors opening on stairwells. Doors bearing Underwriters' Seal of Approval also available. When you specify or buy Fenestra, you get a complete package—door, frame, hardware, machined and fitted at the factory. Ask the Man from Fenestra to help with your selection.

SHOWCASE FOR NATURE

Top award was given to Skidmore, Owings & Merrill, and Levon Seron, Associate Architects, for the school at left, with this jury's comment: "Well executed, orderly and logical space arrangement. Nice respect for the natural amenities which contribute greatly to the complement of a crisp building. Scale and placement of courts give effective relief to internal spaces."

Fenestra Steel Windows played a big role in creating these comments. They also contributed to keeping original costs down—and will save further through lower operative maintenance, as nothing stands up like steel in hard service.

Four of 1958's eight Top Award winning schools*, one Honorable Mention and one Special Features school used Fenestra building products. *Awarded by School Executive magazine.



Sweetbriar Elementary School, Smithtown, N.Y. Architects: Ketchum and Sharp, New York City. SPECIAL FEATURES

SALT, SUN, SOUND AND SAVINGS

Four Fenestra products went into this school: Fenlite Steel Windows because they resist salt-air corrosion and do not require painting; Porcelain Curtain Wall Spandrels (above and below glass "vision strips" in classrooms) to eliminate glare and expensive overhangs; "D" Acoustical Panels which combine structural units, acoustical treatment and finished ceiling, all in one; and a special 10-ft. lightweight cantilever side-entrance canopy. For the gymnasium roof especially, Fenestra's large 60 sq. ft. "D" Panels speeded erection, saved labor costs.

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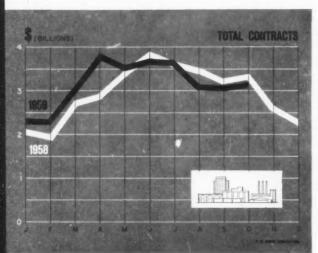
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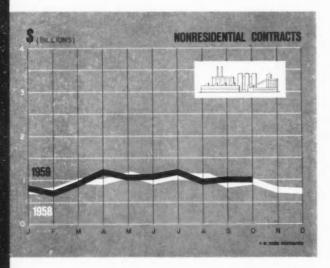


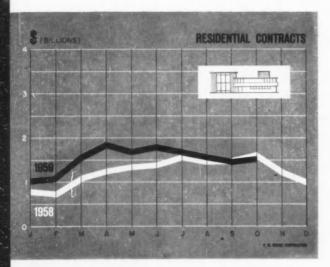


Current Trends in Construction



Total contracts include residential, nonresidential, heavy engineering contracts





IT SEEMS highly appropriate that the Record is beginning 1960 with a BT Study of industrial buildings, because this segment of construction promises to be the boomiest part of the industry for the next couple of years. Elsewhere in this issue we pointed out that contract awards for industrial buildings in 1960 are expected to run some 20 per cent above the 1959 level. Later information which has just become available indicates that the gradual upturn evident in recent months turned into a real boom in November. It is quite possible, as we said in the Dodge outlook statement for 1960, that the 20 per cent estimate will turn out to be too low. We hope it is; if we must err (and who, in the forecasting business, doesn't?) we prefer to err on the side of conservatism.

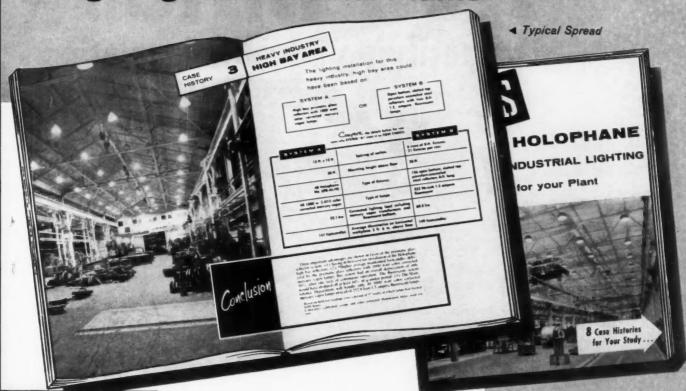
THE NEW FACTORIES, warehouses and research facilities which come under the broad heading of this building type will be quite generally scattered throughout the nation. One reason for this, which is not widely known, is that industrial development has become a highly organized profession in the past couple of decades. Nearly every part of the country has industrial advantages to offer, in terms of transportation, labor supply, natural resources or just plain space. Localities can now call upon expert help in selling these advantages, in the form of professional industrial development staffs of chambers of commerce, railroads, utilities and consulting firms. Companies looking for suitable sites can call on the same resources, plus their own development staffs in many cases. As a result, few suitable spots are overlooked, and a true decentralization is taking place.

ONE SIDELIGHT of the intense interest of communities in attracting new industry should be noted. The typical community wants "desirable" industries-preferably research facilities, industrial training centers, small electronic plants, and the like. Unfortunately, there are relatively few of these. Some communities will have to make room for the heavier industries, or do without. Objections to heavier industry may be based on economic grounds, but probably just as often the fear of industry has its roots in esthetic considerations. Architects probably can't do much about the economics of industrial employment, but they have demonstrated time and again that nearly any kind of industrial operation can be attractively packaged. And between them, architects and engineers have, by good design, been able to eliminate many of the more undesirable features of even the most obnoxious industries. By making industrial buildings good neighbors, they have contributed greatly to the broad dispersion of industry through the land, and have eased the task of locating the enormous investment in new plants which is just getting under way.

RESIDENTIAL NOTE: Some friends of ours have just built a very attractive one-story house whose design, to our inexpert eyes, doesn't seem to fit any of the types we've ever heard of. So we asked them what it was. "We don't exactly know," they said, "but we like to think of it as sort of a low chalet."

GEORGE CLINE SMITH Vice President and Economist F. W. Dodge Corporation

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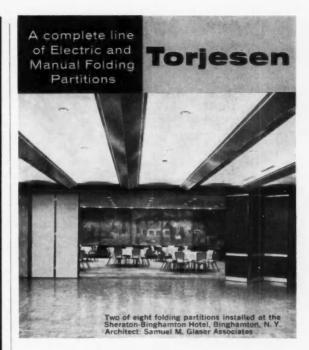


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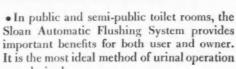


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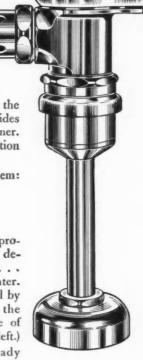


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